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# The Pulp AND Paper Magazine of Canada

Vol. 9—No. 1.

TORONTO, JANUARY, 1911

Canada \$1 a Year  
Single Copy 10c.

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## Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

**Subscriptions:** Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

**BIGGAR-WILSON, Ltd.**

**PUBLISHERS.**

Offices, Confederation Life Building,  
Toronto, Canada.

### RECIPROCITY.

As this country seems about to decide whether or not it will approve of a new reciprocity treaty with the United States, it will be well to examine the circumstances under which the old reciprocity treaty was negotiated and the causes that led to its cancellation. Such examination will throw light upon the serious question of our present duty, as well as upon the problem of our future self-interest.

Let us first ask, What is Reciprocity? It is well to get a clear notion of the term, because it is evident from the statements of public men in both countries that ideas differ widely, and if

these various theories were put into practice the results would be the opposite of what was intended.

"Reciprocal," according to Webster, means "recurring in vicissitude; alternate; done by each to the other; interchanging or interchanged; given and received; due from each to each; mutual." The same authority gives "Reciprocity Treaty" as "a treaty concluded between two countries, conferring equal privileges as regards customs or charges on imports or in other respects." In a political sense the present common idea restricts the term to a treaty dealing with customs tariffs, and Chambers' Cyclopedia defines reciprocity as "a term for an arrangement between two countries having a protective tariff against other countries to admit into each other's territories certain specified taxable articles of commerce duty free, or at exceptionally light duties. The classes of articles are arranged to balance one another on one side and the other." The Cabinet Cyclopedia gives another definition as follows: "A term in economics commonly applied in international relationships to the arrangement whereby two nations mutually agree to import from each other certain goods, either duty free or with duties which are equivalent." If this definition is accepted, then the last clause is important as declaring what is equitable

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and reciprocal in any treaty contemplated between Canada and the United States.

A glance at European and American commercial history of the past 150 years will show that the term "reciprocity treaty" as at first used applied to shipping regulations rather than to customs tariffs. When experience showed that the restrictions of the navigation laws of the eighteenth century resulted in as much harm to the nations imposing them as to the nations against whom they were directed, they began to deal with each other more liberally, and the first breach into these restrictions took place between Great Britain and the United States. A British Order-in-Council was passed in 1783 putting United States ships on the same level as British when trading direct between these two countries. These privileges were not extended to the West Indies, however, out of consideration to the British American provinces, which might be deprived of this trade. After the War of 1812 the treaty of peace concluded between Great Britain and the United States provided, besides the disarmament on the Great Lakes, that the ships of one nation should not be liable to greater charges in the ports of the other than were exacted by such nation in its own ports. This broad approach to free navigation was afterwards somewhat stultified by the coastal regulations adopted by the United States; but it was effective in leading the nations of Europe to look favorably on lower tariffs. It was followed by the complete adoption of free trade by Great Britain in 1846, and might, perhaps, have resulted in free trade between Britain and Europe and America but for the effect of the German Zollverein, followed by

the Franco-Prussian war and the development of interstate commerce of the United States, followed by the Civil War and the collapse of the continental reciprocity plans, of which the treaty between Canada and the States was a part.

From before the time of Britain's adoption of free trade the subject of reciprocity was much discussed, both in the United States and in Canada. Two years before the adoption of free trade by Britain a treaty was actually negotiated between the United States and the German Zollverein (1844), but shared the same fate as a later treaty with Mexico by being killed in the Senate. The constitutional objection of the Senate was that the President, in negotiating the treaty, exceeded his authority in dealing with a question affecting the revenues; but how far the Senate was influenced by those whose interests would be adversely affected by the treaty cannot be known.

The huge debt piled up by the two wars referred to and the consequent necessity of raising increased revenues was largely responsible for the high tariff movement in Germany and France—which by example as well as by force of circumstances affected the smaller European States—while in the United States the demand for a high tariff to pay off the Civil War debt had its effect on the abrogation of the reciprocity treaty with Canada. Thus war caused a reaction in the direction of high tariffs in Europe and America which continued to the opening of the present century.

There were, however, local influences also at work both in Canada and the United States affecting the trade developments of the two countries. These



will be dealt with in another article, and their explanation will serve to show some of the danger spots in any fresh readjustment of trade relations such as now contemplated.

(To be Continued).



### THE FARMERS AND RECIPROCIDITY.

Some of the sidelights on human character which made themselves manifest during the recent utterances of the farmers' delegation to Ottawa last month illustrated the truth of the old proverbs that the worm will turn at last; and that he who has been stepped on will step on others if he gets the chance. In the past the farmer has been often, far too often, looked on as a negligible quantity in politics and economics. Others organized; he did not. And uncombined units do not count for much in practical politics. Now the farmers are getting together. They are organizing and beginning to realize their power. This is in the right direction, as long as they refrain from abusing their power.

But this, perhaps, is more than can be expected. It is only human, we suppose, when a class has been receiving less than its deserts in consideration for long periods, for it to claim more than its share when it beholds that consideration held out toward it. Hearing some politician farmers talk, one might imagine that business men, manufacturers, railroad men, and all other classes of the nation were but parasites preying upon the results of the farmer's labor. Be it granted that agriculture, and two or three other sources of na-

tural wealth, such as the fisheries, lumber and the mines, are the base of the people's wealth, the farmer would even so be hard put to it to grow rich without the aid of many other classes of the community. As says the "Canadian Miller":—

"The statements of the speakers who advocated the resolutions would have had more weight with the country if the assumptions had been less. To assume on behalf of the farmers the attributes of Omnipotence is hardly warranted. It cannot be fairly said that in the farmer all other classes of the community live and move and have their being. The sensible farmer knows that the men who make the tools with which he works, or saw the lumber or make the bricks for his house, are as necessary for the farmer's success and comfort as the farmer is for their sustenance; that the man who toils in the iron or coal mine to dig up the ore or fuel, or the lumberman who leaves his family for the hard life of the winter lumber camp is in turn as necessary to the implement maker and the woodworker as each of those may be to the others.

Let the farmer who imagines that every artisan, or factory worker, or miner, or fisherman, or lumberman is a parasite living upon his bounty sit down and study out how he would cultivate his fields without the appliances to which a thousand laborers in different spheres have contributed their work, or how, after he had raised his crop, he could sell it over the world without the services of railways and steamships, for whose construction and operation ten thousand heads and hands have rendered their tribute of thought and care and labor.

To ask that agricultural implements, farm engines, wagons, etc., be placed on the free list is doing precisely what some manufacturers are condemned for doing—demanding special privileges for the things they need while being unconcerned for the interests of others, to whom they wish to sell at the highest prices obtainable. If the farmer demands free trade in all the important things he has to buy, upon what ground can he question the right to the like privilege for every other class of the community? And if these rights are conceded to others, we come at one step to absolute free trade, which does not exist, even in free trade Britain, so called.

. . . But if raising revenue by customs duties is morally and economically wrong, upon what ground do the farmers ask that this country shall tie itself up by a contract in the form of a reciprocity treaty with a country whose present tariff is from two to four times as high as the present tariff of Canada, and that, too, on some of the very articles in which the farmers ask free trade? It is no argument to say that the United States tariff will be brought down, because that is a matter of opinion and speculation. And if the United States tariff were reduced by one-half, it would still be higher than Canada's in many classes of goods, and such a sweeping reduction would mean a financial panic, which the more conservative elements in that country are not likely to invite by a sudden plunge."

In making tariff changes, doubtless it is right to consider the consumer's pocket as well as the producer's. But the farmers are by no means the only consumers in the country. From one

view they consume proportionately less than most other classes, for they are in a position to supply themselves first hand with some of the chief necessities of life. It is true, as Mr. Drury, the farmers' advocate, points out, that such products as butter, cheese, grain, and meat, are not affected by tariff. Yet it is precisely these items which have made the greatest advances in price in recent years; which would appear, by analogy, to weaken the farmers' case against customs duties on the ground that they increase the cost of everything he uses.

The Hon. Messrs. Fielding and Patterson are now in Washington, at the request of the United States Government, clearing the ground for some measure of reciprocal trade relations. If they succeed in obtaining for the products of Canadian farmers a better and larger market in the great country to the south without jeopardizing other interests all Canadians will be pleased. But if this be obtained at the expense of our manufacturers, or by hastening the depletion of our raw materials, by the aid of which alone our manufacturers can hope to attain to a commanding position in the world's markets, Canada will suffer an almost irreparable blow, and the farmers themselves will realize that they have paid a great deal too much for their whistle. This is precisely the danger of any Reciprocity Treaty as so ably pointed out by Hon. Clifford Sifton, chairman of the Conservation Commission.



St. Catharines ratepayers did not give the by-law to grant a fixed assessment for the Kinleith Paper Mills a sufficient majority to pass.



### HUDSON'S BAY RAILROAD.

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Few people are adverse to the construction of the Hudson's Bay Railway. Such a line would mean quicker and cheaper transport for the grain products of the Western farmer; also the development of large areas of territory covered with pulp-wood, and possibly underlaid with valuable minerals. The Government recognizes the value of such a road, the only "sticking point" being the manner of its construction and operation. The grain-growers insist on Government operation, carried on by an independent commission. The Ottawa Government, however, has taken the lesson of the Intercolonial to heart, and is dubious about committing itself to the operation of a line so apparently uncertain financially as a railroad to Hudson's Bay. A writer in the Peterborough "Review" suggests a way out of the difficulty by letting the Government build the line (double-track if necessary), also the terminals and stations, equip it with all necessary fixtures, operate the telegraph line, etc., all this being under a commission having charge of the property. As to operation, the suggestion is that all railroads alike should be given running rights without lease, the per-mile tonnage rate being fixed by the commission. This would provide the means for maintaining the roadbed, etc., and would leave each company to pay its own charges for rolling stock and for running the trains. An objection to this plan is that no one company would have a real interest in diverting traffic to the Hudson's Bay line, and they might discriminate against it, though the Dominion Board of Railway Commissioners should be able to obviate this. A plan to take care

of freight at the other end, said to be under advisement by the Government, is the erection of receiving sheds, elevators, etc., in Liverpool, though this is more than doubtful. A reasonable through rate from the West to Great Britain is a factor that has to be depended on, whatever may be the mode of operation for the line.



### CANADIAN FORESTRY ASSOCIATION.

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The prevailing talk about tariff matters as they affect forest products, and the general interest in reciprocity negotiations with the United States in connection with the pulp and paper trades should not blind us to the necessity for a proper domestic protection of this country's forest resources. At no time was this necessity greater than it is in this year of grace, 1911. For this reason we bespeak the fullest possible attendance at the Canadian Forestry Convention called by the Premier, to take place in Quebec city on the 18th to 20th inst. The chair will be occupied by the president, Hon. W. C. Edwards, and there are also expected to be present His Excellency Earl Grey, as well as several prominent statesmen, besides those more intimately connected with forestry matters. These will include some from the United States. The "Pulp and Paper Magazine" will have a special correspondent on the field, and purposes having a report of the important proceedings of the Convention in next issue. It recognizes that, in spite of the progress made in forest preservation methods and in the engaging of public interest in everything pertaining to the conservation of our water powers and other natural resources, yet these have but barely kept pace with the growing necessity. To assist in this being done is the worthy programme of the coming Convention.

## Pulpwood Supply From Private Lands, Quebec Province.

Editor Pulp & Paper Magazine,—

In compliance with your request as contained in your letter of December 19, 1910, the writer has taken particular pains to thoroughly investigate and study the question of pulpwood supply from private lands in Quebec province. Messrs. G. C. Piché and A. Bedard of the Quebec Forestry Service were very courteous in assisting the writer to gather statistics from published reports, but they would express no opinions or personal views on this subject since, as evidenced, the policy of the Minister of Lands and Forests is to maintain silence for the present. This perhaps may be taken as a hint that the Minister will himself have some official opinions to present with his annual report to the Legislative Assembly.

Since this question of pulpwood supply has been the cause of a heated controversy following upon the publication of United States Consular reports from Quebec, and as some very serious charges were publicly made against United States Consul Willrich of Quebec, by John Norris, of the Newspaper Publishers' Association, to the effect that Consul Willrich had suppressed and falsified data which he received from the "highest official authority in the province of Quebec," it may be interesting to readers of the Pulp and Paper Magazine to know that the writer arranged a meeting between Consul Willrich and Mr. Piché, Chief Forestry Engineer, and the "highest official authority," referred to, at which the writer was himself present. Mr. Piché expressed sincere regret that Mr. Norris should have made such a groundless charge, and he took occasion to emphatically deny that he (Mr. Piché) had ever furnished Consul Willrich with data on the subject in question, explaining further that the restrictions of his office forbade his supplying any such data for the present. A subsequent letter by Mr. Piché to Con-

sul Willrich further emphasizes his verbal statements.

It is not the writer's business here to comment on or criticize consular reports or any published opinions, private or official. The purpose herein is to present the actual facts without fear or favor.

Of course the obscurity and lack of statistics bearing on this subject permit of a wide divergence in opinions, which on publication are apt to be so clothed by ingenuity and intellectual acumen, that the effect may overcome the opposition of facts.

The questions that present themselves to the investigator in this matter are briefly these:

1. What is the area of private forests in the province of Quebec?
2. What have these forests exported in the past?
3. What are the factors to be considered in estimating future supply?

### Area of Private Forests.

The Dominion census for 1901 shows that the area of private lands in Quebec province was then over thirteen and a half million acres, classified as follows:

Forest .....	5,442,204 acres.
Orchard .....	33,935 "
Pasture .....	3,356,487 "
Field crops .....	4,694,356 "
Small vegetables .....	27,718 "

Total ..... 13,553,800 "

In the year 1901 then the area of private forests was 5,442,204 acres. Of course on this area an allowance for maple groves, hardwood and burnt areas must be deducted. This is the most difficult problem in the absence of data. As the liberal classification of 3,356,487 acres for pasturage takes into account a considerable portion of so-called barren areas, rocky and hardwood lands, and even part of maple groves, it is



readily seen that the forest classification is correspondingly more efficacious. However, to further raise the forests standard and condense its assets to an average for the whole area so classified, it is proper to allow 3,500,000 acres as the area of private forests at the time of the census of 1901. This pruning out of nearly 2,000,000 acres it is fair to state will also allow for forest fires since 1901.

To add to the figures of  $3\frac{1}{2}$  million acres are the private lands granted to settlers under letters patent since 1901. The Government reports show that an area of over  $1\frac{1}{4}$  million acres has been so granted since 1901. As the most of these lands are obviously situated in new and unbroken regions, where by the way, it is interesting to note, the settlers encroach on the limit owners, it is quite conservative to classify as forests one half this area of  $1\frac{1}{4}$  million acres, which adds 625,000 acres to forest lands.

To these figures again must be added an area of 647,000 of railway grant lands, and also some 800,000 acres for the Island of Anticosti. To be on the safe side it is advisable to deduct 200,000 acres for unproductive area on the Island of Anticosti.

The sum total of Quebec's private forests then is as follows:

Census of 1901 .....	3,500,000 acres.
Lands Patent since .....	625,000 "
Railway lands .....	647,000 "
Anticosti Island .....	600,000 "
Total .....	5,372,000 "

It might be borne in mind further, that letters patent are being granted at the rate of 160,000 acres a year.

As, of course, farm lands have improved since 1901, in the process of which the forest must have diminished, it is necessary to make a further allowance of 372,000 acres, which leaves the area of Quebec's private forests at 5,000,000 acres.

### Exports in the Past.

Looking at the trade reports we find that in the year of greatest export the quantity from Quebec did not exceed 750,000 cords. Examining the reports of the Department of Lands and Forests, it is found that less than 150,000 cords for the year of greatest export is accredited the Crown Lands of the province, by which it is inferred that the balance of nearly 600,000 cords was taken from the private lands of the province. This, of course, is erroneous, and the misrepresentation crept in owing to the fact that large exporters of pulpwood measured and paid for their cut in thousand feet standard and being returned thus to the Department of Forests these quantities were understood to be cut for merchant lumber. It is impossible to learn how much pulpwood failed thus to figure in the total exports from Crown Lands. It is safe to say that at least one-third the total exports of pulpwood were taken from Crown Lands.

### Future Supply.

Five cords to the acre is a fair estimate to allow for the amount of pulpwood on private forest lands. In many localities it must be noted that there are tracts averaging 20 cords or more to the acre, therefore, assuming five cords as an average is assuredly not excessive. These figures then will show that the 5,000,000 acres of private forests in Quebec province contain 25,000,000 cords of pulpwood, which at first sight appears available for export to the United States.

There are, however, several factors to consider which must obviously diminish this quantity of 25,000,000 cords.

Remoteness of certain areas, competition by Canadian mill owners, country from settlers to save their limits, country saw mills, and the conservation sentiment which must oblige less and consequently more costly methods of lumbering are all factors which tend to diminish the quantity available for export.

### Conclusions.

It seems to the writer that there is no need of the American mill owners being afraid of not securing a sufficient supply of pulpwood from Quebec, so long as they can afford to pay the right price for it.

Leaving out of consideration the question of cost, there is no doubt that Quebec private lands can supply three quarters of a million cords annually for many years to come; but on the other hand no amount of juggling with facts and figures will convince an impartial observer that mills situated some 400 to 700 or more miles away from the source of raw material can compete in trade with those mills operating at the source of such supply.

With or without tariff walls or reciprocity the fact remains unaltered, that Quebec forests, public and private, are the source capable of furnishing the greatest paper supply in the world; while adducing other conditions, too plain to need mention, the observer is led to the logical conclusion that in order to derive the greatest efficiency in operation and realization of profits the manufacturer must eventually build his mills at and around the sources of raw material and power.

R. O. Swezey.

Quebec, January 7th, 1911.



### DR. FERNOW ON RECIPROCITY.

Dr. Fernow, Dean of the Faculty of Forestry of Toronto University, in an interview on the relation between reciprocity and Canada's timber and pulp wood resources, said:

"Reciprocity is a desirable end in establishing commercial relations between Canada and the United States, but, from the standpoint of the conservation of the timber resources of Canada, reciprocity would, in my opinion, be hardly a benefit unless a radical change in the management of timber limits were to take

place first. If each province had a really strong and properly managed forestry department, which was gauging the cut according to the capacity of reproduction of cut areas, reciprocity would, of course, be a blessing.

An attempt to estimate pulp wood is uncertain in results. For Ontario an estimate made in the Crown lands department places the average per acre for the province at large at around 2 cords per acre.

"If this figure were applied to the whole 400,000,000 acres of country in the Eastern provinces, including the territory north of the height of land, we would find the most extravagant amount of 800,000,000 cords—that is, 8 cords per acre of what we believe actual forest area—a figure not likely to be accepted by those familiar with pulp wood conditions. I am free to guess that not one-quarter of this amount will be available.

"Moreover, it should be understood that much, if not most, of this pulp wood is not spruce, but fir, which presents difficulties in its transportation. . . . The supposition, of course, is that reciprocity means free entrance of lumber and wood goods into the United States. What must the effect be? An increased market, hence increased exploitation. We would merely get rid of the timber in a shorter time, and as fast as development of means of transportation admits. How fast may be judged from the mathematical calculation that the present annual consumption of lumber in the United States could not be supplied from Canadian limits, if our figures are near the truth, for more than ten to twelve years."



The St. Lawrence Paper Mills, Mille Roches, Que., are now operating their new machine, by which the capacity is increased by 35 tons of book paper daily. The number of hands have also been increased very materially. The company is meeting with a very brisk demand for its product.



### QUEBEC PULPWOOD CONTROVERSY.

A somewhat heated controversy arose out of the estimate of pulpwood supply in Quebec province, made by the United States Consul Willrich, and contradicted flatly by John Norris, of the Newspaper Publishers' Association, who furthermore accused the Consul of suppressing data and figures furnished by the best official authority in the province. In view of the general interest in the subject, we requested a valued Quebec correspondent of the Pulp and Paper Magazine, Mr. J. O. Swezey, to make a thorough investigation of the subject on the spot. The result of his careful enquiries appears on another page in this issue. Mr. Swezey is a consulting engineer and has no reason to favor any particular phase of the question, and as he has had wide experience in pulpwood estimating, his views, which he informs us, he is prepared to defend against all adverse criticism, should be read with particular care by all who have a stake in the important question at issue.



### WATER TURBINE PLANT.

We have received a copy of a book entitled "Water Turbine Plant—A Short, Practical Treatise," by Jens Orten-Böving, senior partner in the firm of Jens Orten-Böving & Company, London, who has had a very wide and varied experience in continental works and as a water power specialist in London. The book is prepared partly as a text book, dealing with the modern theory, design and application of water turbines and accessories, and partly as a catalogue, illustrative of plants which have been installed by the above well known firm. It is specially intended to be of practical use to those responsible for the design of complete water power installations and is confined mainly to the more purely mechanical portions of

machine plants. Such civil engineer's questions, as dams, conduits, flow of streams, etc., are not dealt with, being covered by excellent text books already in existence. Sufficient theory and formulae, however, are included to enable a decision upon the correct type of plant, as well as information regarding main dimensions, arrangement, etc., etc. The book, which is handsomely bound and illustrated, is published by Raithby, Lawrence & Co., Ltd., 231-2 Strand, London, W.C. Price 10s. 6d. nett.



—There has been a little difference of opinion among those well qualified to know the facts as to the over-production of paper in the United States. E. U. Kimbark, president of the National Paper Trade Association, points out that there has been, and is to-day, over-production as a result of over-optimism, and the consequence of which is surplus stocks of all varieties of paper. The present output of the mills in Kalamazoo, he says, would easily have supplied the entire trade ten years ago. He contends that, to offset the enormously increased output of paper, there is only a consuming increase of 5 per cent., or a little over; in other words, the United States are producing 75 per cent. in excess of the actual and prospective demand. To the above comments on the situation President A. C. Hastings, of the American Paper and Pulp Association, replies that the whole question resolves itself into common sense in handling one's production rather than a case of optimism, or the reverse. And he asks if there is any other industry which can point in 1910 to operation of 85 to 100 per cent. of its normal capacity as can the paper mills. He disagrees with Mr. Kimbark's figures as to over-production in several grades, but points out that, while Mr. Kimbark's remarks about the enormous increase in production are true, yet he does not make sufficient allowance for the enormous consuming power of the country.

### STOPPING THE LEAKS.

(From "Paper.")

At no time during the history of the paper industry has the prevention of waste received the attention that is being given to it now, and the recent experiments, which have demonstrated its magnitude, are most surprising to the papermaker.

It is impossible to apply to paper manufacture certain systems which have been most successful in other industries, because it is a process in which are found many variations. That which would apply to the production of one grade of paper would not be applicable to another, or the waste sustained in manufacturing one kind would be apt to be more or less than in some other, so the papermaker cannot figure by one system alone; he must have several which are specially adapted to individual circumstances.

The quality and quantity of waste is influenced by the quality of paper manufactured. In a mill manufacturing high-grade papers, composed chiefly of rags, it is greater than in a mill making all-wood papers, because the wood comes to the mill ready for use in the beaters, while it is necessary to put the rags through several processes before they are reduced to half stock.

The quality of the rags determines the shrinkage: the best grades, such as No. 1 linens and cottons, contain much less dirt and foreign matter than the lower grades, such as No. 2 and 3 mixed cottons. After being removed from the bale, the rags are placed in the rag-duster, and thrashed until dust is removed. The shrinkage or waste at this point averages about four per cent. on the lower grade of rags, and about one and one-half to three per cent. on the better grades. The process of cutting follows, and the waste is greater when cutting is done by machine, because of the shredded condition in which the rags are furnished to the final dusting machine through which the rags pass be-

fore going into the boiling kettle. The loss sustained through sorting and cutting varies, but averages about five per cent. The greater part of the waste encountered in rags, from the time they are taken from the bale until they are fed into the boiling kettle, consists of rag dust, buttons, and sweepings. The rag dust, which was formerly burned or thrown away, is now sold to hat-makers, who use it in making felt hats; the poorer quality is used by florists as a fertilizer for certain plants.

The shrinkage in the rags during the boiling process depends upon the amount of starch and size contained in them. In cotton rags it is less than in linen, and averages about ten per cent.

The washing and cutting action to which the rags are subjected after boiling produces a shrinkage of about five per cent., but is sometimes much greater if proper attention is not given to the wire on the cylinder, which allows the escape of the unclean water, or when the cylinder is allowed to remain in contact with the rags after they have been reduced to a fairly short fibre.

The condition of the drainer-stones in the drainers to which the rags are emptied after washing and bleaching practically regulates the shrinkage at this point. In many instances they will be found broken or chipped, so that the loss of fibre cannot be avoided. The drainer-stones should be closely examined every time a drainer becomes empty, for the pulp-digger's pick often finds its way to their surface.

From the time the rags are taken from the drainer and conveyed to the beater, the ensuing shrinkage of waste is practically the same as it is on any other material, for it is subject to the same processes.

In the ordinary course of manufacture no waste takes place in beater or chest, unless it becomes necessary to change the color of the paper being made, when the washing of these causes the loss of some stuff, especially the washing out of the stuff chest. The amount of this waste depends upon its construc-



tion and the efficiency of the agitator. Modern chests are made with cone-shaped bottoms, so that but little stuff remains when an order is being run out. The old chests with the flat bottoms and old-fashioned agitator allow a considerable quantity of stock to remain, when the stuff pump stops work, by getting air. The horizontal chest produces very little waste from this source, and has been installed in many mills.

The papermaker realizes that the piping by which the stuff chest and stuff box of the machine are connected should be as small and short as possible to avoid loss of stuff from "wash-ups."

The loss which takes place on machine is made as small as possible by having constructed under wire and felts a pit which will catch the white water coming from these sections of the machines. The quantity of fibre and loading material this white water contains depends upon the grade of paper being made. Papers requiring great strength naturally work slow on the machine wire, thus retain or lose less material than does the free and short stock. However, a loss is constantly taking place, and several means have been adopted by which the waste contained in the white water is reclaimed. The crudest method is the "tank system," which stores the white water in tanks, until it is possible to use it in furnishing or emptying the beaters. Much doubt exists in the minds of those who have made a study of conservation of paper mill wastes whether this system saves any of the waste, and there are good reasons for believing that it is capable of increasing it. It is absolutely useless in a mill where colors or grade of paper changes frequently, for the use of the water under these conditions would naturally cause much variation in the quality of the paper made, not to mention the difficulties arising from the dirt and slime produced by constant agitation of the back-water and the power required to pump it from tank to beaters.

The most profitable manner of handling the white water from the machine is by means of the save-all machine, through which all the water must pass, and have extracted from it every particle of fibre or mineral which it may contain. Thus the papermaker can see what he is saving, and know that his beaters are being furnished with a uniform quality of water of one temperature. There are several of these save-all machines on the market at the present time.

From the time the paper is placed upon the drying cylinders until it is sent from the mill packed in boxes or bundles, the only waste sustained is from carelessness on the part of the employees in making more quantities of broken paper than is absolutely necessary. True, this paper can be used over again in the beaters, but the amount of saleable product is reduced, and a consequent shrinkage takes place when the paper is repulped.

Without a series of tests, which will prove the saving of waste, the stoppage of it is not complete. The first object should be to determine the amount of waste, and then reduce it as much as possible by proper machines and supervision. This applies to the steam used in the mill as well as to the raw material, as the saving of coal is quite as important.

The majority of papermakers realize the importance of this subject, and are only too glad to give consideration to processes or machines by which it can be solved. The pulp mill is as much affected as is the paper mill. The day of industrial conservation has surely arrived, and it will be a benefit to the paper manufacturer as in other fields. It will be met with opposition in many quarters as are all improvements, but it has already reached a point where such opposition is expensive and inadvisable.



Carl Riordon, of the Riordon Paper Mills, Montreal, is now in England. He is expected home about February 1st.

# KRAFT FROM SULPHATE PULP.

A French correspondent of "Paper Making" writes thus on the subject of kraft paper:

During the years 1887 and 1888, in the course of my travels among the paper mills of Europe, and principally those of Austria, Germany, Russia and Scandinavia, in general, I published a number of circulars on the manufacture of cellulose, and in particular on the sulphate of soda process, and the means of obtaining with the pulp an exceptionally strong paper. The same manner of working that I at that time endeavored to promulgate has since been, at least partly, applied, and the result has been the so-called kraft paper, so greatly in request at the present time that it seems called on shortly to replace all other sorts of wrappings. This will, in particular, be the case when the makers of kraft shall have succeeded in making a sheet that will be thinner, more uniform, better impermeabilized, or waterproofed; in fact, when these papers shall, in every respect, have the fine aspect of those that we make in Europe, and above all, when they shall have received the special sizing made and composed for these sorts.

According to my personal experience, kraft can be obtained in several ways. The method employed in Sweden is based on the ordinary so-called "sulphate process," with a minimum time of cooking in the digester. This shortness of cooking, that I at once adopted, on the first appearance of the sulphate process, may vary according to the nature of the wood employed, and should be the more reduced in the case of treating resinous wood of a soft kind, for it must be borne in mind that botanists distinguish between from eight to ten species of coniferous wood, and each one must naturally be treated according to its organic constitution.

We have the fir (abies), the pine (pinus), and the larch (larix). The *Abies toxifolia* is soft, the wood is white, it is not rich in rosin, and, used for

making sulphite cellulose gives a beautifully white pulp. In the varieties of pinus, we have the *Pinus laricio*, the *Pinus muglius*, the *Pinus silvestris vulgaris*, very rich in rosin; the wood of the latter is hard and close, and, for these reasons, should be particularly adapted for making kraft. The *Pinus maritima* can be used for the same end.

Whatever the varieties of resinous wood that I have had the opportunity of using I have always noted that too high temperatures should not be used nor the time of cooking be too long, for obtaining a fibre suitable for kraft. The principles above explained for the choice of the wood and length of the operation lead me to say that for making kraft it is well to be able to dispose of a sulphate cellulose plant. As already known, the fibre necessary for kraft papers demands a more powerful method of beating than in the case of ordinary cellulose. To obviate this drawback the fibre should not be trituated in beating engines, whose cylinders are furnished with metal knives; it is indispensable, for this trituration, to use edge-runners, or kollergangs, whose periphery turns on the horizontal bed-plate and whose surface is furnished with flat metal teeth. These teeth do not chop the wood fibre as do the knives of the beater; they crush the wood by a kind of mastication, and it is the latter that imparts to the hard fibres of the kraft their great strength. Another advantage of this mode of trituration is that the fibres are not drowned in the water, as in the beating engine, and by this means there is no floating washing that can destroy or weaken the rosin gum that may still remain in the wood. It is this same gum, inherent to resinous wood, that, only slightly diluted by reason of the weak cooking, gives to kraft paper its characteristic strength and constitutes one of its merits. This bedplate with flat teeth is easy to adapt to all existing kollergangs, or edge-runners, and the service that it does is incalculable, not only in the case of kraft, but likewise in that of all paper-making materials.



It is frequently possible, in a paper mill, to annex a plant for making sulphate cellulose, in particular where ground can be obtained close to the mill. I have set up such a plant, for a limited production, it is true, but which has given sufficient pulp for improving the quality of the paper previously made in the mill. This kraft pulp gives body to all the fibres with which it is mixed, whether ground wood cooked without chemicals, straw, or waste papers. Kraft pulp costs infinitely less to make than any other sort of cellulose. A sulphate plant, able to make kraft pulp, is relatively inexpensive, compared to the cost of a sulphite plant. The outlay for the raw materials is likewise inferior, the labor is less, and for those who possess a recovery and calcining furnace contiguous the cost in coal is insignificant, because this furnace feeds itself with the combustible resinous matter that remains in the waste waters and proceeds from the cooking of the wood.

It is a very difficult matter to find sulphate cellulose suitable for making real kraft in conditions of perfect regularity. The pulp obtained from abroad, such as proceeds from the mill, is just as it is—namely, good, bad or indifferent; it should, therefore, not be a matter of surprise if kraft papers made from such pulps, whose quality is variable and uncertain, do not meet the requirements of the purchaser.

The difficulties formerly attached to the manufacture of sulphate cellulose have frequently been objected to, and in particular have been greatly exaggerated. A great deal has been said of the vast amount of motive power required for triturating kraft pulp; we have nevertheless now demonstrated that if vertical rolling stones, otherwise denominated kollergangs or edge-runners, are used, whose bed-plate is furnished with flat metal teeth, the required power is considerably reduced, and it is rather inferior to that of an ordinary engine beating cotton rags. People in general are wrongly informed

as to the so-called obnoxious smell that proceeds from the calcining furnace. This assertion is a mere invention, for this smell scarcely exists now, compared with its intensity at the time when sulphate was first used, and shovelfuls of this material were thrown direct into the furnace.

I am asked whether it would be possible to manufacture a cellulose for making kraft in a mill already constructed for sulphite? To this I am able to reply affirmatively, notwithstanding that there is nothing in common between the two systems, apart from the manner of preparing the wood before cooking. In a sulphite mill it is advantageous to annex a sulphate plant, because the residuary liquors proceeding from the manufacture of sulphite cellulose, modified after being extracted from the digester, are of great use in preparing a fresh cellulose possessing the properties requisite for making kraft. The sulphurous agents contained in the waste liquors of sulphite have a potent disincrustating action on the resinous matter contained in the wood. The question of the digesters, whose construction differs greatly in the two methods, has no appreciable importance. The modification requisite in the sulphite digesters is a simple inward arrangement, by means of which, alternatively, the wood can be cooked with sulphite or with sulphate. In consequence of this, a plant disposed for sulphite pulp can likewise make sulphate, without destroying what exists, and merely adding what is wanting.

The greatest existing difficulty is not among those above enumerated, but rather in the want of initiative on the part of those to whose interest it would be to do what would be necessary for the making or improving a product whose success is beforehand assured. This, however, has been done by many manufacturers in Europe, as soon as they perceived that by making kraft they would be able advantageously to increase the production of their mills. Under the pretext of being conservative,

it is not well to keep up old customs when something new appears that it would be in our interest to take up, nor to put off doing so until foreign products shall have thrust themselves on the market. The imitation kraft papers that central Europe ships to America are indisputably better manufactured than are those of Scandinavia; they are better sized, better finished, more water-resisting, and have a more pleasant aspect. It is, therefore, not a matter for surprise that in many cases these papers should be preferred. There is, however, no possible reason why the paper-makers of other lands should not make these sorts just as well, if they will only take the trouble to install their mills in consequence.



#### DANGER OF RECIPROCITY.

Editor Pulp and Paper Magazine, Toronto, Ont.:

Dear Sir,—You asked me some little time ago what I thought about a treaty between the United States and Canada for reciprocal tariff concessions.

My opinion is that each nation should continually revise its tariff with the assistance and recommendations of a thoroughly competent and non-political commission to suit its own needs.

If it pays either nation to lower or remove any of its duties towards the other, such a revision should provide for this.

I think it important that the revision should be continuous, and that it should be thoroughly understood that all protection is more or less temporary, to meet temporary needs, and that ultimately all the tariffs in the world will disappear as each country reaches its natural development.

It seems to me that if any two nations make concessions to each other by treaty, one or other of them is sure to give more than it receives, and this will cause hard feeling and bring about the reverse of good, neighborly relations. I

also think that the effect of a treaty of this kind would be to bind each nation too much in its tariff relations and to make it difficult to change any of these, and I think that this will apply particularly to the weaker nation.

Carl Riordon.

Montreal, Dec. 21, 1910.



#### BRITISH PAPER EXPORTS.

The following list summarizes the paper exports from Great Britain during the eleven months ending with November 30th last:—

	Cwts.	Value.
Writings .....	224,764	£467,508
Printings .....	1,422,820	1,342,150
Packings and wrappings .....	625,372	284,876
Hangings .....	107,138	256,015
Other printed or coated papers ...	24,555	103,636
Paste, mill and cardboard .....	76,072	83,670
Manufactures of paste, mill and cardboard .....	32,330	62,303
Playing cards, 77-846 doz. packs...	2,636	17,860
Envelopes .....	27,073	65,358
Bags .....	37,014	38,258
Unenumerated and articles of paper.	52,958	124,083

The aggregate value shown, namely, \$2,845,825, is an increase of over £527,000 over the similar period of 1909. The largest item, printings, shows an increase of £246,166; writings, an increase of £22,580, due largely to the greater demand from Canada and other parts of the Empire.



John S. Hughes has started operations at the Clyde River Pulp and Paper Co.'s mill at Clyde River, Shelburne county, Nova Scotia.



# NEW INCORPORATIONS.

The following new companies have recently been granted charters:—

Golden Grove Land Co., Vancouver; capital, \$100,000. To acquire the interest of W. J. Malcolm in lands in the Upper Columbia Valley and to build pulp and sawmills.

Realty Fruit and Land Co., Limited, Vancouver; capital, \$500,000. To manufacture pulp and paper, including cardboard and millboard.

Northern Coal and Coke Co., Limited; head office, Winnipeg; capital, \$1,000,000; licensed to do business in British Columbia, with office at Fernie. To build pulp mills, etc.

Wolverine Lumber Co., Limited, Vancouver; capital, \$75,000. To manufacture lumber, pulp and paper.

Columbia Paper Co., Limited, Vancouver; capital, \$75,000. To manufacture paper, stationery, printers and publishers' supplies, etc.

Construction Works, Limited, Montreal; capital, \$500,000. To carry on any kind of lumber, pulp and paper business. A. S. Archambault and J. H. Prescott, Montreal.

La Compagnie de Pulpe de Chicoutimi; head office, Chicoutimi, Que.; capital, \$1,000,000. To manufacture and deal in lumber, pulp and paper. Hon. N. Garneau, G. Demoine, J. A. Couture, all of Quebec; J. N. Belleau, K.C., Levis; W. Hanson, Montreal, and F. X. Gosselin and J. E. A. Dubuc, of Chicoutimi.

Crown Timber and Trading Co., Vancouver; capital, \$50,000. To build saw, pulp and flour mills.

Fort George Timber and Transportation Co., Vancouver; capital, \$200,000. To manufacture pulp and paper, etc.

Internations Contracting Company, Limited, Winnipeg, capital, \$50,000,000. To treat any kind of wood with waterproofing materials, manufacture pulp.

R. L. Lush and E. W. Peters, financial brokers; S. H. Green and E. R. Chapman, barristers and M. J. Hunter, agent, all of Winnipeg.

L. Villeneuve et Cie Lté, Montreal capital, \$200,000. To cut pulpwood, manufacture pulp, etc. L. Villeneuve, merchant; J. A. Villeneuve and J. P. Dupré, accountants; Patrick Murphy, clerk; all of Montreal, and Jos. Paquette, clerk of St. Francois de Salle, Que.

J. H. McComb, Limited, Montreal, capital, \$50,000. To make paints, varnishes, papers, felt, paper or canvas fabrics of all kinds. S. W. Jacobs, K.C., A. R. Hall, and G. C. Papineau-Couture, advocates, Montreal.

Sault Star, Limited, Sault Ste. Marie, Ont. Capital, \$40,000. To carry on a printing and newspaper publishing business. J. W. Curran and J. A. Furse, of Sault Ste. Marie.

Edward Partington Pulp and Paper Company, Limited, Union Point, St. John, N.B. Capital, \$900,000. To manufacture all kinds of pulp and paper and to acquire as a going concern the business of Edward Partington and of the Cushing Mill property. Edward Partington, Glossop, Eng.; Thos. McAvity and Geo. S. Fisher, both of St. John; J. R. Clarkson of Lancaster, St. John; H. W. Schofield, St. John and A. H. Hannington, St. John.

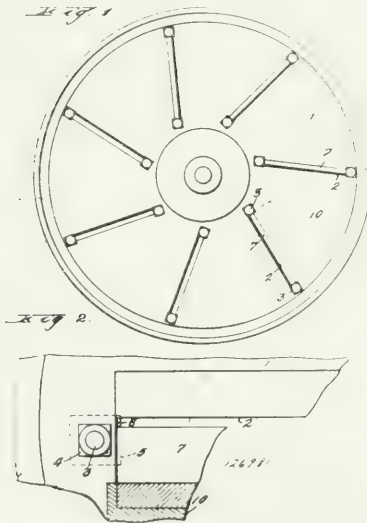


—The annual meeting of the American Paper and Pulp Association for 1911 will take place at the Waldorf-Astoria, New York, on February 15th and 16th. The first day will be devoted to meetings of the different divisions of the trade, and reports and suggestions as to trade customs, etc., made at these meetings will be ratified at the general meeting on the following day. The annual banquet will be held on the evening of the 16th.

## Recent Canadian Patents Affecting the Pulp and Paper Trades.

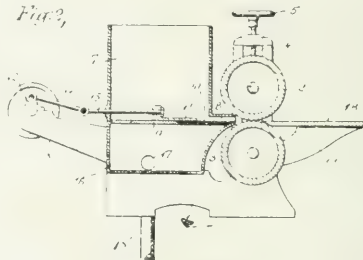
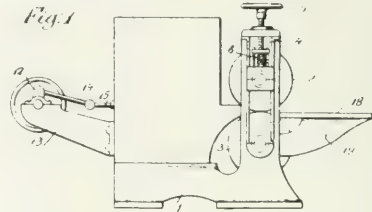
No. 126,081—Bark Rossing Machine.—The Valley Iron Works Company, Appleton, Wisconsin, assignee of Geo. S. Witham, Jr., Hudson Falls, N.Y. In a bark rossing machine there is a rotary disc provided with blade-receiving slots and blade-supporting projections on its rear surface, blades mounted upon said projections with cutting edges extending through said slots, each of said blades being provided with

the combination with press rollers and a vat, of a screen at the bottom of said



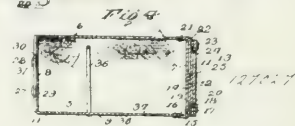
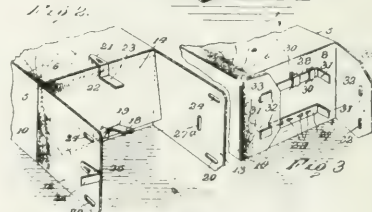
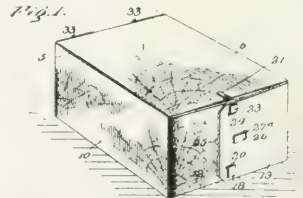
open-ended slots, and said projections being correspondingly recesses, and provided with undercut portions adapted to receive securing bolts, securing bolts in said recesses with heads engaged in said undercut portions, and shanks extending outwardly through the recesses and through the open-ended slots in the blades, and clamping nuts on the outer ends of said bolts adapted to bind the blades against said projections.

No. 127,107—Machine for Forming Pulp Boards.—Harry Elmer Tidmarsh, Sandy Hill, assignee of Frank M. Chapman, Fort Edward, both in New York. In a machine for forming pulp boards



No. 127,107.

vat, and a plunger adapted to be reciprocated on said screen to feed the pulp to said rollers.



No. 127,027—Paper Box and Fastener.—Walter S. Matthews, Jr., Gulfport,



Mississippi. This invention is a box having a top and provided with overlapping end flaps, spaced clips secured to the top and bottom of the box and extending through slots formed in the overlapping end flaps for engagement with the exterior face of one of the end flaps, and an auxiliary clip secured to one of the end flaps and extending through the mating flap.



### CLEANING FELTS.

Milled felts must be cleaned differently from woven felts. The later can be cleaned with warm soap and ammonia and a fairly stiff brush without danger, especially if the precaution is taken to soak a new brush for a few hours in the soap and ammonia lye before using it for the first time. Wire brushes must on no account be used, even for woven felts, and no bristle brushes may be employed for milled felts. The milled felts used by the paper-maker are like the cloths worn under the saddle by horsemen, and so well made that they can be worn very thin without losing their uniformity of texture or becoming quite useless. The only brushes permissible for milled felts are those made of seaweed.

If a milled felt has run so long that it is dirty with earths or mineral pigments, without, however, having much fibre or pulp sticking to it, it can be cleaned if it has not worn too thin, by beating it under the hose with supple hazel switches. Sticks must on no account be used, and the switches must be perfectly smooth and free from knots or other projections which might catch and tear the felt. The beating should be done with rapid yet light strokes. The function of the jet of water from the hose is to wash away the dirt as it is dislodged by the thrashing, and, of course, the felt must be treated on both sides.

If the dirt in the felt is chiefly fibre and scraps of web, beating is of very

little use, for they cling too obstinately. This is when the seaweed brushes come in, and plenty of lukewarm water and soft soap. Even this comparatively mild treatment, however, wears the felt out more than beating does. If the felt is very dirty a little ammonia should be used as well as soft soap. After soaping rinse with cold water by means of the hose, and the work is done.



### PACKING-PAPER QUESTIONS.

A correspondent of the "Papier u. Schriebwaren Zeitung" takes exception to the practice of having packing paper in rolls. When it is in flat sheets, he says, various sizes, according to the size of the parcel to be wrapped up, are easily stocked in definite positions—in labelled drawers, for example—so that the packer can at once get a sheet of the size he wants.

With rolls, on the other hand, as the diameter of the roll diminishes in proportion to the amount of paper taken from it, there is always a perfectly natural tendency to tear off more than is wanted, as the packer is not able to judge exactly from the size of the roll at the time being, and must, of course, take enough. The result is much waste of paper, whether the excess is used for packing or not.

Another point to which attention is called is that the sheets should be thick. It is, no doubt, true that a thin paper may be really stronger than a thicker one, but the public, and even the packer, are obsessed with the idea that only a thick paper can have the necessary strength. Hence it is a common practice to use two sheets of thin paper, even if the packer knows that one would be enough, if only thin paper is at hand.

Another mistake is to have wrappings of glaring colors. An American firm had once the idea of using wrappings dyed various conspicuous colors, with the idea that the color would be an advertisement of the firm: that anybody

seeing somebody else walking in the street with a parcel of a glaring green color would say to himself, "Hullo! that is So-and-So's color; not the first I have seen. What a business that firm must do!" As a matter of fact, the public objected to be made a walking advertisement of, and ordered such parcels to be sent by post or carrier. Hence, the advertisement was lost, and extra cost was put upon the firm. It goes without saying that the firm in question never used up all its stock of dyed wrappings—for the purpose intended, at all events.

Another point to be considered is concerned with tying up parcels. Thick string is always to be preferred, and for a reason quite analogous to that which dictates the employment of thick rather than thin paper. Thin, strong string, if its strength is appreciated, and only just enough of it is used, cuts into the parcel. If its strength is not appreciated, it is used wastefully. In Austria it seems that girls are less reliable than men for parcel packing, as they take big sheets when smaller ones would do. It has been estimated that the saving in paper got when men do the packing more than makes up for the necessity of having to pay somewhat higher wages.



#### THE TEARING OF PAPER IN NEWSPAPER PRINTING.

The question has been frequently raised in the trade press as to the cause of this trouble, but it has not been satisfactorily answered. When flat-printing two or four-page newspapers with solid text forms, and comparatively light advertisements, on ordinary news printing paper, especially if glazed, it may happen that the sheets are already cracked through the calendering. However, this cracking may happen in various ways. Sometimes more and sometimes less in several reams not a single sheet will be cracked, and yet in the course of the next few hundred runs the trouble will occur without there being

any visible reason for it. The paper may be of the same appearance in the reams, the impression may be normal, the column rules have not risen, and yet the sheets will be cracked in the middle through the pressure of the rear half of the printing form. The difficulty is often noticed when the machines, as is often the case in this kind of work, are run quickly. One questioner set the trouble down to the paper, and he was probably right in his assumption, for if pine wood pulp is an ingredient in the manufacture, it gives the paper, on account of its short fibres, an insufficient felting and makes it brittle, so that it has little resistance. Such paper does not stand the pulling and straining which results from the heavy pressure required for solid newspaper forms. For a long time it was thought in practical circles that the creases which so easily occur when printing bordered forms were due to the air pressure in the hollows of the form, but this cannot be so when the printing cylinder rolls from millimetre to millimetre, and thus gives the air plenty of time to escape. The peculiarity of the appearance of this tearing of the sheet is that the crack is always in the middle of the rear half of the sheet, and it is just this peculiarity that proves the tearing to be the result of local pressure, which the paper cannot stand. In most cases the trouble is probably to be attributed to a rather too strong packing of the cylinder, and to unequal closing of the grippers. However, a badly fastened cylinder cover is not without influence on the equal rolling of the cylinder over the form. Owing to too strong packings a shifting of the cylinder on the form occurs, and the grippers only holding the sheet in places, the paper tears, being unable to resist the strain. Where papers are worked which have this tendency to tear, they should be printed with a medium-weak packing of the cylinder. The best covering is an English soft leather cloth with some few sheets of soft, uncalendered paper on top for taking up

the impression. Further care should be taken that the grippers hold the sheet uniformly, and that a medium impression is given. With such precautions the difficulty will certainly be overcome.



### CONE MILLS.

Anyone who has been in an American paper mill cannot fail to have been struck with the extensive use made in these establishments of cone mills, usually of the Jordan type. To the writer's knowledge there is hardly a paper mill throughout the States that does not contain at least one of these mills. Now, the Yankee never uses anything unless he thinks he is going to get dollars thereby, so that the fact that the Jordan mill in its various forms has been extensively employed for at least half a century is a good testimonial to its merits. On large scale working it replaces intermittent by continuous action.

The use of small and middle sized hollanders has long been abandoned in America, and no such machines are now used unless they will take at least 12 cwt. of dry stuff at a charge. The following brief description of the use of the cone mill will be of interest.

On leaving the hollander the pulp, dyed in the hollander if colored paper is wanted, runs into a tank, from which it is pumped uninterruptedly into the cone mill. The mill is provided with a wooden pulp-chest divided into three compartments by sliding wooden partitions. The pump delivers the pulp into the centre compartment, whence its delivery to the mill is regulated by suitable adjustment of the sliding door. The third compartment receives any excess of supply from the hollander, and returns it to the tank.

The mill itself consists essentially of a cast-iron conical casing, inside which are fixed knives of the best steel arranged parallel to the axis of the cone but slightly elbowed. The spaces be-

tween the knives are partly filled with maple as a support. The movable cone which rotates inside is provided with furrows, in which steel knives are wedged with the same wood. This internal cone revolves at from 200 to 300 revolutions per minute, and the horse power required is from 15 to 30 for the current sizes. The pulp enters the mill at the small end, and passes rather slowly, but faster and faster as it approaches the wide end, so that the fibres are drawn out and made better amenable to the cutting action of the knives. The mill acts perfectly as a mixer as well as a disintegrator, as it amalgamates dye and size with the pulp better than can be done by any hollander.

In using the beating engine much always depends on the skill of the attendant. Once anything has gone wrong in the hollander it is always very difficult, and often impossible, to prevent the effects being felt on the Fourdrinier and in the finished paper. There is no fear, however, when the cone mill is used, and no particular care is required in working it once it has been adjusted for the particular sort of pulp required. The mill is used in America not only in the manufacture of printings and boards but also for making fine papers of linen rags and tough packing papers.

There is one advantage of the cone mill which must not be forgotten, viz., the smallness of the space that it requires. Mill-owners who cannot afford to build in order to increase their output will do well by replacing one or two hollanders by a cone mill. At the same time, it must not be thought that the Jordan mill will do everything. It must be regarded as a finishing engine, and its use never supersedes preliminary treatment in the hollander.—Zentralblatt.



T. Robinson, M.P.P., has bought a large tract of timber land near Acton, N.B., and will ship large quantities of pulp-wood.



**WARPED CARDBOARD.**

It is obvious that any kind of paper, boards especially, tends to warp and be unequal in texture in proportion to its thickness. When the weight per square metre exceeds 400 grammes this danger becomes ever present, in the case of cardboards made on the Fourdrinier, at the usual speed of such goods—of about seven feet per minute. This class of goods is intended chiefly for blotting, absorption, or embossing, and, heavy and thick as they may be, must, therefore, have perfectly uniform thickness over the entire web, and possess a well-closed and absolutely even surface. The thickness may be as much as one-sixteenth of an inch ( $1\frac{1}{2}$  mm.), which will give a weight of from 900 to 1,000 grammes per square metre. It is naturally not easy to get such sheets of good quality and of uniform texture on the Fourdrinier. With the cylinder machine the matter is easier, for this makes the paper in several layers instead of in a single thickness. At the same time, this machine turns out the goods too hard, for the pressure necessary to secure the requisite cohesion between the layers generally makes the board too impermeable. Hence we are practically driven to the use of the Fourdrinier, and the following remarks will, it is hoped, enable the reader to turn out a satisfactory product by its use, whenever suitable raw material is skilfully employed.

The raw material is generally soft cotton or linen rag, and is not sized at all. The machine must have a very long wet end, rather a strong shake with a short stroke, and a high speed of rotation. Suction boxes should be discarded if possible, because they draw the stuff too close and make it too dense. To get rid of the superfluous water, an Obersieb is to be preferred to suction boxes; the pressure between the couch rolls must be small, and they must both be covered with felt to further protect the web from over-pressure. The wet press has only to smooth the sur-

face before the web is dried, and consists of a low felted roller and a light metal upper roller bearing on the other with its own weight only.

As regards the use of the machine, we begin with the flow from the apron on to the wire. Here it is of the utmost consequence that the apron should be perfectly level, so as not to deliver more pulp on one side of the wire than on the other. At the same time the edge of the apron must touch the wire over its entire width. Should this not be the case, streaks or blisters will be produced in the paper. The substance used for the apron is also of importance. If the stuff is delivered warm on to the wires, india rubber aprons may cause much trouble by crumpling, so that they do not rest uniformly upon the wire. In such cases, by far the best material for the apron is soft sheepskin leather. This material will not shrink unequally and crumple in warm water, nor will it cause blisters in the web. The leather must be fairly thick, however, if these two advantages are to be fully secured. It should be about one-sixth of an inch thick, and its thickness must be absolutely uniform. Leathers are often sold which vary in thickness, and they are sure to warp and blister under the action of hot water, because the thinner parts get more thoroughly soaked than the thicker portions. A really good leather apron is a valuable asset. It lasts a very long time, and never gets uneven where it meets the wire.

It goes without saying almost that the wire itself must be perfectly level. It is impossible to make paper of any kind on a wire showing even the smallest rut or hollow. Such defects are not infrequently caused if the sand-catchers and the other pulp-purifying parts at the wet end are not acting properly, so that hard lumps of fibre or other undesirable bodies make their appearance on the wire. The felt on the couch-roll also requires constant supervision. If it is not wearing uniformly, so that the external diameter of the roll varies, it is evident that inequalities in the thick-

ness of the paper must inevitably follow. Defects in the couch roll may result from using a bad quality of felt, or from the causes just mentioned as affecting the perfect levelness over the whole wire. Acids, too, used for washing the wire often cause want of evenness in the couching felt, if the wire has not been properly rinsed. Wool is easily tendered by acid, and made thereby of unequal resistance to pressure. The shaking motion cannot do any harm so long as it takes place in a truly horizontal direction, and in modern paper machines there is little fear of danger in this direction. In conclusion, we may call attention to the importance of keeping all felts clean as well as uniform. In fact, as already pointed out, a dirty felt cannot be kept with a uniform surface, on account of the fact that the dirtier places sink below the general level. Uniform cleanliness over the whole surface of a roller can be secured, but uniform dirtiness never.



#### MANUFACTURE OF COPYING TISSUES.

The most suitable furnish for this class of paper consists of 50 per cent. of cotton rags, 20 per cent. linen and the rest bleached sulphate-soda wood pulp. In preparing the pulp the rags must be subjected only to a mild chemical treatment, and should then be broken into half-stuff with sharp tackle and milled fairly fine. If the knives of the beaters be too blunt the stuff acquires a greasy character which cannot be corrected, and the paper is hard and non-absorbent. The soda pulp employed should have been digested at a high steam pressure with a highly concentrated liquor for a comparatively short time. The bulk of the chemical work should be done in the boiling process and comparatively little bleaching should be required. The admixture of about 40 per cent. of pine wood to the ordinary spruce wood gives a desirable

cotton-like character to the pulp. The wood should be of the best quality, trees of 100 years' growth giving the best pulp. If the soda pulp is of suitable quality its proportion in the furnish may be increased. In beating, the Zwilling type of hollander with bronze tackle gives excellent results; the Hoffsümmer beater is also very suitable. Hollanders with single rolls never impart such a good felting character to the pulp, and the advantage of the Hoffsümmer beater is remarkable. An arrangement for counterbalancing the weight of the roll is distinctly advantageous. If the stuff is beaten too "free," the paper tends to stick to the press rolls; if too "wet," the paper will not copy. The danger of over-milling increases when the proportion of wood pulp in the furnish is increased. Sharp tackle is essential in order to avoid the parchment-like character of wood pulp papers. On the paper machine a very fine wire should be used, because the "free" beaten stuff tends to part with its water very rapidly, and it is necessary to allow time for the felting of the fibres. The practice of placing metal or rubber sheets under the wire to hold back the water in the stuff has not appeared to answer. The best means for obtaining a well-made sheet consist in suitable beating and copious dilution of the pulp. A speed of 130 feet per minute is about the maximum obtainable. At higher speeds small pin-holes, cloudy look-through and deficient flexibility are the faults which develop. With the modern preference for copying paper in reels, the uniform absorption of the water has become of primary importance, and the manufacturer should never neglect to test his paper with a reel-copying machine.



William Cauldwell Paper Company, of Montreal, are suing the Toronto "World" Newspaper Co., W. F. Maclean and Catherine G. Maclean for \$2,319.84, alleged to be due on a promissory note.

## Trade and Manufacturers' Notes.

The Continental Bag and Paper Company have nearly completed their new plant at Ottawa. The new works are situated in Wellington Street, at the corner of Bridge Street, and the main building is 110 x 80 ft., two storeys high. It will operate 16 machines of the latest design, on paper bags. The president of the company is J. W. Hennessy of Fort Coulonge, Que., the manager, W. W. Ormsbee of the Union Bag & Paper Company, and the secretary-treasurer is Wm. Anderson.

\* \* \*

The Smart-Turner Machine Company, Limited, Hamilton, are supplying pumps, etc., to the power house of the Toronto and York Radial Railway Company; the roundhouse on the Grand Trunk Railway at Lake Superior Junction, Ont.; Geo. F. Webb, Hamilton; the Canada Refining and Smelting Company, Orillia; the Wolverton Milling Company, of Drumbo; the Pure Milk Company, Hamilton; J. C. Wilson & Company, Lachute Mills, Que.

\* \* \*

A beautiful calendar is that being sent out to the trade by the Manson Company, Thorold, Ont., manufacturers of centrifugal and rotary cylinder screens and other pulp and paper mill machinery. The illustration is a large one in beautiful colors, entitled "Helen," and is reproduced from the picture of that name by William Thorne, A.N.A., one of the foremost living American artists.

\* \* \*

The Scandinavian-American Trading Company, Produce Exchange Building, New York, have issued a novelty, in the form of an aluminum card calendar for 1911. This company are large importers and exporters of foreign and domestic pulp, and all kinds of paper mill supplies.

One of the prettiest calendars we have received this season comes from the J. C. McLaren Belting Company, Limited, Montreal, with branches in Toronto and Winnipeg, manufacturers of and dealers in all kinds of belting and general mill supplies. The picture is entitled "Safe," and represents a fine elk standing in the water, safely removed from its savage pursuers.



The Conservation Commission, Ottawa, has issued a statement in regard to the starting of forest fires by locomotives, and the proposed legislation on the question. It declares that it has had investigations made by competent men and finds that thirty per cent. of all forest fires have been started by locomotives, and that they have caused enormous loss. The legislation will hold railways responsible for damage caused by fires started by locomotives unless it can be shown that all reasonable precautions have been taken to prevent such fires. The precautions will include the best possible spark-arresting devices, efficient fire-fighting staffs to check fires which have been started, and the companies will have to show that there has been no negligence on the part of their employees in allowing fires to start or spread.

\* \* \*

Construction of the new Kenogami paper mill, by Price Bros. Co., will be begun as soon as the winter breaks up, and is to be finished by June, 1912. It will be situate on Riviere au Sable. About 1,000 hands will be employed. It is calculated that an annual cut of something like 3,000,000 logs will be required, which will be obtained from Lake St. John, Lake Kenogami, and Saguenay districts. The mill department will be in charge of Oswald A. Porrit.



## MEASURE VOLUME OF MINERAL FILLINGS.

It is often important for the paper-maker to know the volume and differences in weight manifested by different fillings and mineral pigments. For instance, two samples of china clay, apparently exactly alike, may differ in specific gravity, and hence in their filling capacity, the chief point of consideration in paper making, it is necessary to be able to form an idea of the ratio between the filling and the weighting effects of a given mineral.

In comparing different minerals they must first be taken in equal volumes, after having been dried in an oven until they cease to lose weight. They are then filled into little cubical tin pots, measuring inside exactly 10 cm. in depth, length, and breadth. Hence they hold one litre exactly. These pots must be weighed empty, and brought to the same weight by putting a bit of solder on the outside, or by scraping off metal. One hundred grammes is a convenient weight, and any tinman of ordinary skill can get them so nearly right, by using a sheet of the proper thickness, that very little tinkering will be wanted on the finished pots. The pots are then filled with the minerals to be compared. These must be in the finest possible powder, and in powder of the same fineness, as shown by their all having passed the same sieve. To get the pots exactly full they must be well shaken down, and there must be an excess of powder to be removed by passing a straight-edge over the top of the pot. When this has been done the pots are weighed, and the differences between the weights of the full and the empty pots are the weights of equal bulks of the powders under examination. The ratios of the weights will, of course, be the ratio of the respective specific gravities. It is not necessary, of course, to have the pots any special weight, so long as they all have the same, and that weight recorded

or scratched on the metal. To show what differences may occur, it may be mentioned that the writer weighed six different samples of china clay, all having come at different times from the same mine, and got the following six weights: 940, 940, 886, 1,012, 977, 910 grammes. The difference is very considerable. All these figures being the weights of equal volumes, the fourth is the heaviest, and therefore gives the most weighting, while filling no better and no worse than the others. Five samples of talc got from the same purveyor, and supplied as "what you have always had," gave quite as striking figures, viz., 822, 816, 840, 897, and 828 grammes.

These results are of the greatest value in selecting a mineral filling for any special purpose. For example, talc, soapstone, and asbestos are very voluminous in proportion to their weight. The various forms of sulphate of baryta, such as barytes, blanc fixe, etc., are at the other end of the scale, and while very heavy are bad fillers. The same is true of the most dark mineral pigments. The method is, of course, merely a cheap and simple means of getting specific gravities. Kaolin occupying a middle place between talc and barytes is to be preferred where weighting and filling are both required, barytes where increasing the weight is the chief desideratum, and talc, or those resembling it, when a full appearance and handle is required with a minimum increase in weight.



The Dominion Railway Commissioners again took up the freight rates on wood pulp shipped over the Niagara, St. Catharines and Toronto and Michigan Central Railways by James Davy of Thorold. The rate from Thorold to Suspension Bridge was formerly 2c. per 100 lbs., but has been raised to 4½c. and the application was for fair treatment and a return to the old rates. Judgment was reserved.

## THE WET END OF THE PAPER MACHINE.

Both at the dry end and the wet end of the paper machine the arrangements are often unsuitable, says "Papierfabrikant," but the efficiency of the machine suffers far more from defects at the wet end, which it is our present object to discuss, than from defects at the dry end.

As regards the stuff-chests, it matters little whether they are vertical or horizontal. In the latter case the pulp is usually ladled out from them by bucket-wheels, but a pump is often used. There is not much to choose between the two methods. Vertical chests are often made too small. The rate of revolution of the agitator requires attention; it should never exceed five turns a minute, but a speed of three, or even two, is generally better. The chests should always be divided into two compartments, communicating by a sluice or a valve, so that one compartment may be emptying while the other is having its contents properly mixed. Both compartments must have cocks for the removal of sediment. If pipes are used to take the pulp from the chest to the sand-catcher they are best made of sheet copper, but cast-iron can be used if well galvanized. If gutters are employed they are wooden channels of rectangular section, but with the angles fitted with triangular wooden rods, whereby the cleaning of the gutter is greatly facilitated. The covers of the gutters should be readily removable. All nails used for the wood should be tinned, and no screws should be employed except brass screws. Before reaching the sand-catcher the pulp must pass through a chest in which the coarser sediment may settle, so that it does not reach the catcher. The sand-catcher itself must be arranged so that it can be emptied by turning it over.

Similar pipes or gutters take the pulp from the sand-catcher to the knoter. Most of the knotters now used are of the rotary type, and, although the older

form is very good, it should be replaced when a new knoter is required by a rotary machine. Over the plates of a stationary knoter a wooden or copper gutter should be placed, to increase the output of the machine, and also to preserve the plates. There must, of course, be outlet openings in this gutter, and they are best closed by sliding pieces of copper. The pulp reaches the knoter by means of this gutter. To facilitate cleaning, the cover is provided with iron rings whereby it may be lifted off. There should be an intermediate chest between the knoter and that supplying the pulp to the wires. The final chest should have no sharp corners wherein pulp may lodge. The apron is best fixed with copper nails, and must receive the pulp quickly and uniformly without any vertical fall, so that the cast-iron trough sometimes used here is objectionable. The apron must not be placed upon two register cylinders, but must end immediately over one cylinder, or a little beyond it.

The deckle-straps are often too small. If a rather thick paper is being made, and the straps are too narrow, they are forced to one side, and the deckle edge of the paper is thereby made sinuous. An excellent average size is two by two inches. Washing troughs for the straps should never be omitted.

The register cylinders must have a diameter of at least three inches to prevent them from getting bent. They should run in adjustable bearings so that they can be raised or lowered as occasion requires.

The wires must be long enough; fifteen yards may be regarded as the minimum length.

The suction-boxes should be numerous and narrow rather than few and broad. They should be of brass to avoid trouble with rust.

The couch-rolls and the upper press-rolls must have a sufficiently thick coating of copper, or better, of bronze. If the coating is only a small fraction of an inch in thickness it is impossible to turn up the cylinders when they need

to go to the lathe. The upper couch-roll should be perforated here and there for the escape of air and water from under the felt, and all the rollers should be mounted so that the lower rollers can be easily drawn out and the upper rollers lifted away. The upper rollers should have their bearings protected from water-drippings, and the pressure on the bearings is best furnished by means of weighted levers. When papers are being made with a mineral filling the first press should be provided with a felt washer; otherwise these washers should be avoided. The first press should have a felt-sucker, but this must be worked by a separate pump, and on no account by the pump working the suction boxes, as if that pump is made to do such double duty, air coming from the felt will effectually prevent the maintenance of a proper vacuum in the suction boxes.



### THE IMPORTANCE OF SCREEN PLATES.

As often stated, the paper is really made in the beater-room; it is none the less true that the quality of the beater-room work is shown in the screen-room. The little plate in the bottom of the screen is a remorseless tale-bearer, however well or ill the work of the beater is done.

Formerly the plates in the screens were made of sheet brass, but now an alloy of copper and tin is in the most frequent use. The plate must be of such material as to withstand hard wear, and the corrosive action of the various chemicals in the stock and in the water that passes over them. The slots themselves must be cut to gauge according to the length of the stock used, and must be perfectly smooth to hinder corrosion. Few of us realize the immense friction superinduced by the suction of the diaphragm to which the screen plate is subjected, and it is not to be wondered at that the average life

of a screen plate is not more than a year. In a sulphite mill the life of a plate is shorter than in a print mill, a manila mill, or a ground wood mill. In fact, a ground wood mill screen plate is longer lived than any other. The average screen carries ten plates, and the gauge to which they are cut varies, according to the stock used.

The greatest enemies of screen plates are the chemicals in the stock and water, and efforts of the plate-maker are directed towards producing a metal which will withstand those acids. Copper is the best of all bases used in screen plates. Pure brass is unsatisfactory, because of the zinc which it contains, since no metal is so quickly dissolved by the acids used in paper-making as zinc. The best of all metals to resist chemical action is lead, but it is too soft to be used in the same proportion as copper, since a soft plate soon wears out. Tin is the next best virgin metal to resist acid, but being the highest priced it disproportionately increases the cost, and if it is mixed with copper in too great a proportion it will harden the plate so that the cost of production will be very much larger. The plate most in use is 12 by 42 inches, usually  $\frac{3}{8}$ -in. thick, cast of phosphor bronze and hand-finished, so as to be perfectly smooth.

The slots are cut with a very fine-toothed, highly tempered saw, slightly smaller than the gauge desired, and are then burnished by hand. All screen-makers do not burnish the inside of the slots, since that greatly increases the cost of production, but such screen plates will not take as much stock as the others, and increased screening capacity more than makes up for the difference in cost of production. The screening capacity varies with the conditions under which the screens are operated and with the stock used. Sometimes it may be very high, and, on the contrary, it may be very low, through no fault of the screen, and this is a point which many superintendents overlook.



The three vital points in the screen-plate are the percentage of the various ingredients used in the composition of the metal, the accurateness of cutting, and the degree of smoothness to which the slot is finished. The use of modern methods and machinery have so improved the plates now in use that their average cost is less to-day than it was ten or fifteen years ago, and their average capacity is greater.

One crying need in the screen-room of the paper mill to-day is a device which will cleanse the screen-plate quickly and thoroughly. Various are the schemes used to accomplish this, but as yet none have been found entirely satisfactory.

Sometimes a wash is prepared containing vitriol, which is supposed to cleanse by its chemical action. Sometimes jets of steam are used. These are supposed to cleanse by their mechanical force, and sometimes fail of their object. Sometimes alkalis are used, making a sort of soap when it comes in contact with the acidified pulp in the slots. Sometimes a sheet of copper or a wire brush is used by hand. This is not always good, for the reason that the slightest scratch upon the surface will increase the tendency of the plate to pit upon coming in contact with the acid in stock, and when pitting once begins the life of the plate is short. There is a golden opportunity for some inventor whose device will quickly and thoroughly cleanse screen-plates under all conditions.



#### DEVELOPMENT OF CASEIN MARKET.

The following information from Harrison Watson, Canadian Trade Agent in London, Eng., is of interest in view of the importance of casein in the paper trade and of the objections made to the use of skim milk for manufacturing purposes because of its removal of an important feeding by-product from the farms:—

Upon previous occasions reference has been made to the increase in the industrial uses of casein. It is now reported that several of the large dairying enterprises in Scandinavia have developed a sufficient market in Germany, France and other countries for this product of their skimmed milk to warrant its manufacture upon a considerable and permanent scale.

In the countries mentioned large factories have been established for converting the casein into a substance which is known as "galalith," and which is placed on the market in several shades of color. This material is made to imitate closely the appearance of tortoise shell, amber and similar products, and it is being largely employed in the manufacture of combs. It is claimed that galalith is devoid of smell, and has a great advantage over celluloid, owing to its being unflammable, both of which are large factors in its popularity.

An authority estimates that the manufacture of combs from this material alone aggregates nearly \$500,000 annually, and other articles being manufactured from galalith include buttons, handles, scientific apparatus and various fancy goods.

It is understood that the opinion is still held in Canada that the production of casein is less profitable to farmers than the use of their skimmed milk for feeding purposes. But it is apparent that the manufacture of casein has become a valuable development in other large dairying countries.



The Miramichi Pulp and Paper Co., Chatham, N.B., is practically in the hands of the Bank of Montreal, to which it is indebted for about \$100,000, prior, we understand, to being taken under other control. The mill employed about 250 hands, but for some time past has been closed down. Liabilities are said to be \$650,000. W. B. Snowball, of Chatham, and A. H. Hannington, St. John, are permanent liquidators.

**TREATMENT OF COTTON RAGS.**

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One of the most important processes in the preparation of the rags is the rotting process, says "Wochenblatt für Papierfabrikation." In the writer's opinion this process not only facilitates the breaking in of the rags by tendering the fibres, but also effects the removal by decomposition of the natural fat of the cotton. This latter phenomenon is accompanied by the production of a powerful, rancid odor which is extremely difficult to get rid of by washing with ordinary water, but which is best removed by means of water containing a little soda. This rancid odor is produced far more strongly when new cotton rags are subjected to the rotting process than with old rags from which the bulk of the natural fat has been removed.

Cotton may be described as a brittle fibre which does not felt closely, but which is suitable for bulky, non-stretching and opaque papers, especially if the natural fat has been removed by rotting. By suitable milling with light rolls a strong cotton fibre can be so split up that it felts more closely and gives a strong paper, but generally cotton is mainly used for sharply beaten, soft and absorbent papers.

New cotton cuttings are used for the manufacture of bulky drawing and writing papers, which have to stand erasure, care being taken, however, to embed the brittle cotton fibres thoroughly with more flexible fibres so that the paper shall not be too spongy.

For the preparation of multi-color printing, illustration and map papers, which are required not to stretch during printing, old, but still fairly strong, cotton rags are most suitable, being comparatively free from natural fat, and consequently more receptive toward the colors. The rags should not be subjected to a rotting process, but the halfstuff should be used after a short storage. The tensions on the paper machine, after the paper has left the wet presses, should be kept tight, with-

out, however, disturbing the felting of the fibres in the machine direction of the web, and the drying felts should be stretched closely on the cylinders to prevent the paper from shrinking during drying.

In the manufacture of drawing papers, on the other hand, the paper should be allowed to shrink as much as possible on the driers and the felts should only be tightly stretched toward the end of the drying to prevent cockling, and to insure perfect drying.

For the manufacture of parchmentizing papers the cotton rags should be as old and tender as possible; the paper is only required to possess sufficient strength to carry it through the acid bath. The same applies to rags intended for blotting papers.

If the halfstuff be saturated with a weak solution of caustic soda and stored for a short time on the floor, the effect is more pronounced than if the rags be kept moist, even for a year in the ordinary way of rotting. It does no harm to leave the soda in without washing before beating.

For the manufacture of filtering papers, strong cotton rags should be well boiled and allowed to lie for eight to fourteen days without washing. The halfstuff prepared from them should then be used at once in order that the fatty matters removed from the outside of the fibres by washing may not become replaced by the exudation of other fatty matters from the interior of the fibres.

For the manufacture of filtering pulp for clarifying wine, beer, etc., clean, white, worn, but still strong cotton rags should be used. The rags should be boiled and bleached and every impurity scrupulously removed by thorough washing with pure water. The object should be to avoid everything that can possibly communicate a flavor to the filtered liquid. Fermentation and rotting of the rags or halfstuff must be avoided, and the whole worked rapidly through until it is ready for drying.

## Pulp and Paper News.

The Foley-Rieger Pulp and Paper Co., Thorold, are planning to go into tissue and toilet paper manufacturing in the spring.

\* \* \*

Eugene Desloges, a workman in the E. B. Eddy paper mills, Hull, met a terrible death, when he was drawn into one of the big machines and pushed through the rollers.

\* \* \*

The Partington Pulp and Paper Co. has been granted the lease by the city of St. John, N.B., of several additional lots adjoining the pulp mill at Union Point, on which it will build a paper mill and make other extensions.

\* \* \*

The Brompton Pulp and Paper Company, of Sherbrooke, has purchased the 5,000 acre timber limits of T. M. Craig in Compton County, Quebec, also the Emberton Lumber Company limits, extending to about 3,000 acres.

\* \* \*

The Canada Keg and Barrel Co. has been granted by the town of Orillia a site of five acres adjoining the new silver smelting works, on which four brick buildings are to be erected for the manufacture of the patent Sanford barrel, a one-piece veneer barrel, with the top and bottom made of wood pulp.

\* \* \*

Several members of the recent farmers' delegation, visiting Ottawa were escorted through J. R. Booth and E. B. Eddy Company's pulp and paper factories, in order for them to learn something of the vast importance of the interests of the manufacturers, which might be seriously affected by any reciprocity treaty with the United States.

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As a Christmas souvenir to its readers the Manitoba Free Press, Winnipeg, sent out a roll of paper made by the Laurentide Paper Company, and accompanied by a booklet containing a brief history

of paper from the ancient papyrus of Egypt to the news print made from Canadian pulpwood. It concludes with statistics of the Canadian paper industry and figures showing the general progress of Canada.

\* \* \*

A bill has been introduced in the United States Congress by an Oklahoma representative to provide for the admission into the United States, free of duty, of wood pulp and printing paper, on condition that the country or province from which it is imported does not in any way restrict the export of same or of the wood from which it is made. We understand the politician in question is in no way personally interested in the pulp and paper trades.

\* \* \*

Now that pulp-wood cut on Crown lands in the Province of Quebec for export is subject to additional impost, the demand for wood cut on private holdings has reached Anticosti Island, and Mr. Menier will, hereafter, it is calculated, furnish 30,000 cords for export annually. It is believed that this supply can be permanently maintained, for the island is 150 miles long and 30 miles wide in its broadest part. This winter there are from 500 to 600 laborers employed in cutting wood on Anticosti. Mr. Menier is spending about \$500,000 building mills and a railway. There are already ten miles built of the latter, leading from the scene of operations in the woods to the new mill at Ellis Bay, which is to have a capacity for sawing and peeling 400 cords of pulp-wood per day.

\* \* \*

The Canada Power and Paper Co., controlled by Sir William Mackenzie and Canadian Northern interests, is negotiating with the Ontario Government for pulp-wood areas in the Nepigon forest reserve district, where there are some



extensive water-powers. This is practically the same concession which brought James Conmee, of Port Arthur, into conflict with the provincial authorities and the Hydro-Electric Commission two or three years ago. Sir William Mackenzie desires to see the pulp and water-power resources developed, because the proposed Canadian Northern Railway line from Port Arthur to Sudbury will pass through the area in question. The railway secured from the Government in 1909 a bonus of 4,000 acres per mile for part of the route, the line on which is already under construction.


\* \* \*

The Spanish River Pulp and Paper Mills, Limited, is progressing with its reorganization. With larger resources of capital, it will be able to extend its operations very considerably. The authorized capital will be \$2,000,000 in 7 per cent. preferred stock, \$1,500,000 of which is to be issued at the present time; \$2,000,000 common stock, of which \$1,650,000 will be issued at once, and \$2,500,000 first mortgage twenty-year gold bonds, of which \$1,300,000 are being issued now. Part of the latter amount will be used for the erection of a 100-ton news mill next year. When the proposed extensions are completed the mills will have a capacity of 3,000 tons of news print annually and 25,000 tons of ground wood, practically all of it going to the Middle Western States.

\* \* \*

✓ The Ontario Government will offer for sale two important pulpwood concessions. One is at Abitibi Lake, with an area of about 1,560 square miles, with a fine water power at Iroquois Falls, and calls for the erection there of a \$500,000 pulp and paper mill with a daily output of 100 tons of paper. The other has an area of 800 square miles and necessitates the building of a \$350,000 pulp and paper mill with a capacity of at least 50 tons of paper daily, at Fort Frances, where power is already developed by the Ontario & Minnesota Power Company. This should give the settlers in North-

ern Ontario, what they have long desired—a good and ample market for their pulpwood. \* \* \*

The Columbia Paper Company, Ltd., a new organization formed to conduct a wholesale paper business has opened up in Vancouver, B.C. The offices are Karl A. Smeed, C. J. Kay and W. Wolfenden. Mr. Smeed has been western representative for a number of years for W. J. Gage and Company, the well known stationers and paper dealers of Toronto. Mr. Kay is a practical paper-maker with many years' experience both in British and American mills and for the last two and a half years has been associated with the firm of Smith Davidson and Wright, wholesale stationers and paper dealers, Vancouver, B.C. Mr. Wolfenden is also well known in the trade, having been in business in Armstrong, B.C., for a number of years. As all three are young men of energy and ability and thoroughly acquainted with the business and conditions pertaining to the West, the success of the enterprise is assured. The office and warehouses are situated at 1043-5-7 Hamilton Street, in Vancouver's new wholesale district. 

The "Canadian Pictorial" is one of the best-printed magazines in Canada. It is crowded with interesting pictures of recent happenings, pictures of beautiful or curious things, portraits of men and women in the limelight, pictures showing the kaleidoscopic development of our great Dominion—pictures that tell the facts as no type-printed pages ever could. It is the next best thing to travelling and seeing people, places, and events with one's own eyes. The more people are educated, the more they appreciate and value pictures of current events, for they convey so much information in so short a time. But the children also profit by and enjoy them. The "Canadian Pictorial" contains between one and two thousand square inches of pictures in each issue, and costs to produce a thousand dollars each issue—sometimes considerably more.

### ABSORPTION OF WATER BY PAPERS.

Every paper has the faculty to absorb water, either taking it up from moist air or through direct contact. Several kinds of paper, as, for instance, blotting paper, should take up moisture as quickly and energetically as possible, while other grades should neither, in direct contact nor in moist weather, instantaneously absorb any water.

To the last-named kinds of paper belong before all such papers, that are used for insulating electrical wirings and, further, paper used for the manufacturing of cartridges, which must be so little hygroscopic, that it absolutely protects the gunpowder against any moisture. Further, such papers also belong here, which are used for the packing of tobacco, and especially, snuff. The paper must here protect the moisture contained in the snuff against evaporation, and not absorb it itself.

The author had to test a number of better wrapping papers as to their water-absorbing properties. They were to be used for the manufacture of cartridges, and it was to be found out which of several samples was best suitable for the purpose. First was determined the absorption of moisture by exactly weighed pieces of paper, hung in an extra moist room. At the same time several other papers of better and finer quality, both half-sized and unsized, were subjected to the same test. The air-moisture as an average was 85-90%; the average temperature in the testing-room 20° (C.). Already after a short time it could be stated that all papers had absorbed water from the air. Curiously enough, there was only a very slight difference between sized and unsized qualities. It was later found, that the absorption of moisture from the air by all papers, either sized, half-sized, or not sized at all, depends more upon the previous treatment of the pulp, than upon the sizing; of course the kinds of pulp used and the weight per square unit are

also of importance. All papers very finely ground, for instance, and before all other imitated parchment papers, possess a special faculty to absorb water from moist air in quite important quantities; they hold already at a normal percentage of moisture in the air about 10% water, while other papers only hold 5-7%. The table on opposite page illustrates the absorption of water from the air with 85-90% moisture in the room for a period of 3 times 24 hours.

No important differences could be found between the ten kinds of wrapping paper, which could be taken into consideration. It would be noticed that the unsized and half-sized papers sooner attained their constant maximum weight than the completely sized papers, but here must also the pulp-mixture and the way of grinding be noted, as just these factors were very different for the sized and unsized kinds.

Other results were obtained, when the different papers were brought directly in contact with water; their behaviour as to water absorption from air was quite different from direct contact with water. In this test pieces of paper of the same size of the different kinds were exactly weighed and carefully placed with one side on the surface of water in a big bowl. There they were left for exactly five minutes, then carefully taken up and quickly squeezed with an even pressure between clean, dry sheets of blotting paper, always of the same make and weighed again. The results are visible in the table, and show that the papers have absorbed more water when the sizing was poor, than when it was good. The kind of grinding is of less importance for this test with direct water; more influence has the degree of sizing, consequently the contrary to the first experiments. Therefore, also, the first way of testing is more suitable for papers to be used for cartridges, as cartridges only seldom can be supposed to come in direct contact with water. The intention is to protect them, when they are carried for a longer time, for in-

TABLE

No.	Quality.	Grammes per sq. m.	Furnish.	Water absrptn. in % from the air.	Water absrptn. in % of direct water.	Thick- ness m.m.
1	Wrapping paper I.	108	Spruce cellulose, some rags	14.2	35	0.19
2	" " II.	107	Linen and cotton, cellulose	14.4	48	0.20
3	" " III.	120	Linen and cotton, cellulose	13.2	60	0.21
4	" " IV.	114	Spruce cellulose, rag-, ground wood-pulp	12.8	50	0.22
5	" " V.	102	Rags, spruce cellulose, ground wood-pulp	14.1	38	0.18
6	" " VI.	98	Ground wood-pulp, cellulose, straw-pulp	11.9	40	0.19
7	" " VII.	114	Spruce cellulose, rags	12.4	39	0.20
8	" " VIII.	109	Linen and cotton, cellulose	12.9	72	0.26
9	" " IX.	105	Brown gr. wood-pulp with spruce cellulose	13.2	50	0.22
10	" " X.	103	Cotton, "jute," spruce cellulose	14.1	45	0.16
11	Filtering paper	80	Cotton, some linen	10.4	78	0.09
12	News	52	Gr. wood-pulp, 75% ; cellulose, 25%	9.8	58	0.07
13	Normal 3a	90	Linen & cotton, cellulose & straw-pulp	9.7	29	0.09
14	Blotting paper	140	Cotton and much soft-wood cellulose	10.2	73	0.26
15	Sulphite tissue	20	Spruce cellulose	9.0	62	0.03
16	Imit. parchment I.	25	Spruce cellulose	14.9	42	0.03
17	" " II.	45	Spruce cellulose, with gr. wood-pulp	15.1	41	0.04
18	Drawing paper I.	151	Spruce cellulose with much straw-pulp	14.2	38	0.19
19	" " II.	140	Linen and flax, cellulose	14.4	36	0.18
20	Blotting cardboard I.	180	Cotton, linen, cellulose	10.9	62	0.29
21	" " II.	190	Cotton, spruce, and soft-wood cellulose	10.1	72	0.36
22	Copying tissue	42	Cotton, linen and flax	11.4	76	0.05
23	Book paper	122	Linen and cellulose	13.2	40	0.14



stance, when trunking, or when stored, from taking up moisture from the air. For other papers, which also should have only a small capacity for absorbing water, and which more come in direct contact with some moist stuff, as, for instance, the tobacco paper, mentioned before, insulations for electrical wirings, often left in the open air during rainy weather, etc., a test according to the second method is more suitable. Most appropriate must, of course, such a paper be, which gives satisfaction in both cases; but it is not always so easy to get these two factors combined.



### BLOTTINGS

Blotting paper can be made from rags and chemical pulp. With or without the addition of mechanical pulp the most suitable material is such rags as give the proper softness, bulk, and absorbent power, and cotton rags have these properties to a higher degree than others. The softness is of importance, as the absorptive power—the chief requisite of a blotting paper—depends upon it to a large extent.

As regards the pulping, it is of the utmost importance to bear in mind that material intended for blotting and filter paper requires special treatment.

Aspen and esparto are the best pulps for blottings, as they give a very porous web; at the same time they cannot be used without an admixture of other raw materials, as the paper would be too hard and stiff. Pliability in a blotting paper is evidently a factor of prime importance. We see here that softness may be secured at the cost of absorbent power, and vice versa, the object being to combine both properties as far as possible. For example: Mineral filling is sometimes used to soften a blotting pulp, but it does so at the cost of diminishing the absorbent power, for the paper so made fetches only a second-rate price.

All half-stuff must be made as quickly as possible, whether the material be rags or wood pulp of any kind. Rags should be soaked in weak caustic soda lye before going to the machine, to soften them and enable the knives to act on them more quickly. The fibre must be cut very short, and the necessary time must be allowed. The revolving knives should be set at an angle to the fixed knives at the bottom, and should be about one-third of an inch apart; the diagonal position materially shortens the process, giving the necessary shortness with less expenditure of power than would otherwise be the case. When possible, half-stuff for blottings should be worked up just after the knives have been sharpened, and that for ordinary paper when they have been blunted a little.

Chemical pulp for blottings must be quickly boiled, and the following method gives a good soft-bleached pulp. The pulp is first acted on for one hour by from one to one-and-a-half per cent. of its weight of caustic soda in the usual quantity of water. It is then rinsed free from alkali and treated with the bleach of from five to six hours in the hollander.

Both bleached chemical pulp and rag half-stuff should be stored for a week or so before being used. If mechanical pulp is requisitioned, that which is slowly ground with sharp stones is to be preferred. The wood should be well seasoned, and felled young. It is said that the addition of about 2 lb. of concentrated sulphuric acid to every 100 lb. of rag half-stuff, with quick and thorough mixing, of course, the moment it leaves the hollander makes the resulting paper more absorbent. The writer has no practical experience of this, but can only say that the only place where he ever saw the practice it turned out very good blotting paper. The pulp must be thin in any case, so thin that it can be thrown into waves by moving the containing vessel.

Wood pulp must not be made so greasy as rag pulp, and it would seem that almost any grade of blotting can be made by mixing greasy rag pulp with proper proportions of coarse wood pulps.

# THE TONE, TEXTURE, AND QUALITY OF THE HIGHER CLASS PRINT- ING PAPERS.

By Harry A. Maddox, in *Printing Art*.

Before proceeding to review the defects of hand-mades, it may be of interest to explain the marvelous dexterity displayed in forming a sheet of hand-made paper from the vat. In this there is a copious supply of slightly warm pulp under agitation. The vatman may be required to pick up on his mould just sufficient pulp to ultimately form a sheet dried and finished, with the addition of a film of gelatine weighing 1-472 of 11 lbs. Conversely, if working on heavy stock such a size as 53 in. x 31 in. Antiquarian is produced, each sheet of which requires to scale 1-472 of 240 lbs. During the whole of the procedure the vatman's hands are dripping with water, one drop of which on the wet sheet of pulp would be sufficient to render it unfit for a perfect ream. Under these circumstances it is evident that the cost of hand-made papers must be such as to cover the imperfections which with machine papers are quite at a minimum. From the exigencies of the hand-made process, absolute evenness of the thickness of the sheet is not always assured. Owing to the method of sizing, which is splendidly adapted to ledger paper, loans, and bonds, an extremely hard surface is attained, which is at a disadvantage in book printing, where to obtain the best results under modern conditions of the press we require a certain softness of texture. A very great objection to hand-made papers is caused by the presence of hairs on the surface, which cause trouble when the paper is used for either writing or printing purposes. The wet sheets of pulp are transferred by the coucher to a felt and another thick felt placed on the top. A pile of alternate felts and sheets receive tremendous pressure by hydraulic power, which causes the felts to adhere to the water-leaf. Afterwards the sheets are stripped or peeled off, and necessarily many of the wool hairs from the felt are drawn off on to the paper.

Considering now the modern highest class printings as compared with the hand-mades, we require all the good qualities of the lat-

ter and an absence of its defects. It has already been sufficiently shown that right up to the actual forming of the sheet the procedure may be exactly the same in either process, except that we are allowed the use of resin for sizing in machine-made papers, which is debarred under hand-made conditions. Resin sizing helps to bring the fibers together somewhat, i.e., binds them, and furthermore has a softer effect on the finished sheet than gelatine. However, as we are allowed the use of gelatine after resin sizing, we must regard this as an advantage in favor of machine-mades, for different effects of texture may be thus introduced. The difficulty caused by inequality in stretch, crossway from machine way, is of little account under the conditions for which the higher printings are usually required. Where color work is preferred, and register in superposing colors is desired, such papers as chromo, art, litho, and other specially produced cheaper qualities of stock are used; so that the cost will bear no comparison with that of hand-made, which could not enter into the question for other obvious reasons. Such cheaper papers are treated specially throughout, right from choice and treatment of raw material up to the various modes of effecting finish, with a result that color and register work are not beset by such attendant difficulties as formerly existed.

The strength of printings made on the machine compares favorably with that of hand-mades, although perhaps it may hardly be distributed so equally in each direction. In the machine way, working from the same stuff as for hand-mades, greater strength can be obtained than in the case of the latter, whilst crossway it may be slightly inferior. Considering the splendid tensile strain which such papers will resist in each direction, it is of exceedingly small account that one direction falls slightly below the other in strength. This slight difference can have absolutely no influence in regard to permanency of product, and as its effect on any other qualification is nil, there are scanty grounds for objection in this argument.

Connoisseurs of printing regard the decayed edges of hand-made papers with admiration, from its artistic aspect. Certainly the appearance is refined, but unfortunately, ex-

cept in a few isolated cases of editions de luxe, these deckles cannot show on all edges of the finished printed product. By necessity only the head, and occasionally the fore edge, remain deckled. On machine-made papers we can be allowed the use of two deckled edges, and by a water jet arrangement on the wet end of the paper machine, imitation deckled edges can be produced. For restricted classes of work these edges are desirable and can be obtained by the method just mentioned; but taking the case of bookwork, it is to be feared that the roughness of edge forms a lodging for dust and dirt.

. From the conditions under which papers are made on machine, there is an aptitude to produce an unevenness in the two surfaces, i.e., the wire of the wet end may show its impression on the finished sheet. There is, of course, an immense amount of suction in the wet pulp, which tends to draw it downwards into the interstices of the wire. On commoner bulky papers the resultant reticulation is plainly visible. Especially in the case of laid papers is this appearance objectionable, for the upper surface shows clearly laid marks, whilst underneath are the pores of the woven wire. On well made paper, however, where the fibers are long and well treated, there is no occasion with a properly managed stock to show these marks in a manner visible to the naked eye, except when held to light, and even then, hardly perceptibly. The tone or tint of printing papers is a quality which may vary in a thousand ways. Unbleached stock from highest quality carefully chosen cotton rags is of a dead white color sensation. Such class as this is rare, but in regard to permanence and purity it is most valuable. Practically all modern papers are brought up to color by methods similar in principle to that by which the laundrymaid uses blue to whiten the linen. Without the application of a brightening tint, pulp would appear dead or dull. It is therefore important to have particular attention paid to the class of dye used for toning. Aniline dyes are the greatest in favor, but for high-class products should be avoided, for they cannot be guaranteed to last. For blueing, smalts were originally used, and here we have a mineral color which is

absolutely reliable. If used in appreciable quantity, however, the pigment has a tendency to sink and create a darker shade or tone on the underside of the paper, as will be specially noticed in smalts dyed ledger stock. Ultramarine is largely used, but of this there are numerous grades and only the best is to be depended upon. Without going into detail of pigment or dye for brightening the color of white printings, suffice it to say that absolute fastness of tone is essential in high-class stock. From the printer's point of view, the particular tint is an important item and should receive careful consideration with a view to adaptation to style of type and object of matter in hand. Whereas a dead white may sometimes appear harsh, the use of bold-faced type and density of ink will atone for this and produce good contrast. Toned papers of a delicate iron-buff shade are favored for certain classes of work, with judicious use of correct shades of red with black, the former for initials, and with careful manipulation an exquisite effect is attained. Incidentally, we may observe that iron-buff is a tone which may be relied upon. For other art work colored tints are required, and such stock yields refined productions when printed upon with correct type face in harmonizing shade of ink. But let the pigments, both in paper and ink, be guaranteed, otherwise the refinement of appearance rapidly fades. It is a remarkable fact that amongst the printed relics of olden days (15th and 16th century) colored paper and ink, except red, are notable from their absence. The tone of the paper has a tendency to change the effect of colored inks upon it, in some cases reducing the capacity and in others increasing it.



#### SIZING WITH STARCH.

It is possible to obtain starch products, which form a coherent film on glass and paper, and in 1900 a soluble starch was manufactured in France, which filled this condition. This was a starch product obtained through oxidation with alkaline hypochlorites. Experiments on a small scale gave satisfactory results, which, however, were not obtained on a manufacturing scale.



Starch testers, however, were found to possess ideal qualities, as they flow easily, the solutions are stable, and they have good color and considerable glueing power; but the commercial brands, "feculose," as they are called, caused considerable trouble. The feculose must be neutral as the animal glue, and must be easily made liquid, if it should solidify. The use of neutralizing substances as borax, oxide of zinc, magnesia, etc., was found to cause the feculose to solidify quicker, and make it more difficult to dissolve again.

The usual means against spots, such as the adding of olein, etc., to the coating material, were tried, but without success. Feculose and casein cannot be mixed, but feculose and animal glue can be used together, and the author met with success, when using glue-feculose mixtures for surface coating. It was found to be advisable first to mix the feculose with the mineral. The coating substance used to foam, when experimenting on a bigger scale, and especially thick coatings caused trouble.

A mixture of colloids of so different origin as animal glue and feculose separates naturally in two layers, when left quiet. At present we can only rely upon experiments, until the composition of the substance is better known. A cheap grade of feculose was tried in 1905, which gave good results with neutral minerals, such as blanc fixe or kaoline, but could be used with satin white. A neutral or acid satin-white was, therefore, made and tried, and a very good coating resulted. Finally the whole problem was reduced to the question of manufacturing a starch product, which would not be changed by alkali, as far as its glueing qualities are concerned.

All kinds of feculose, that had been tried, reacted with alkali. The solution became thin and watery, except in one case, which gave a hint, in which direction the solution of the problem was to be found. After careful experiments it was stated, that all oxidized starch was

changed by alkali. This smoothed the road for further investigation, and a new grade of feculose was made, complying with the above conditions. A solution of this feculose with 4-5 parts of water will remain liquid for several days.

The product coming from the converter contains 4 per cent. free and 6 per cent. combined acetic acid, and the free acid must first be taken care of, in order to make it possible to sell the product. This was first done by neutralizing with different alkalis, but better results have later been obtained by washing out the product.

This is at present offered for sale in three grades:—

1.—**As it comes from the converter**, in which case the paper coater washes and then boils the substance as usual.

2.—**Watery-feculose.** This is the washed but undried product, and is sold in barrels as a paste with 50 per cent. water. It is very stable, and easy to use in this form.

3.—**Washed and dried feculose.**

Feculose is at present used in such quantities, that there can be no doubt, that it fills all demands, which can be made on a glue for coating purposes. It is prepared for use by boiling in any suitable way with 4-5 times its weight of water. No difficulties are met with, when the mineral substances are mixed in, if the chemical composition of the feculose is taken in due consideration. It is a partially acetylated starch with 5-6 per cent. combined acetic acid, which reacts strongly with the starch from reasons, which as yet are not quite clear, at the same times as it takes up water. Neutral or acid mineral substances don't cause any changes, but the acetate of starch is slowly decomposed with alkaline mineral substances, such as satin-white, and an insoluble starch hydrate results. It is advisable, as all chemical reactions are accelerated by heat, to cool the feculose solution before adding the satin-white, in order to delay the thickening, that takes place. The fact, that a

feculose coating solidifies, when distributed on paper and exposed to the drying temperature, illustrates its valuable qualities; in this respect it is directly contrary to animal glue.

The feculose coating substance can be used as it comes from the mixing machine. It does not foam during the manufacturing process; it can be dried at a considerably higher temperature than glue, and consequently much time is saved.

The paper coating includes many separate processes, of which only the outlines can be given here.

**Comparison.**—15-20 per cent. more feculose are used than rosin, in order to obtain just as good a surface; the data for casein of best quality are about the same.

**Smoothness,** (with satin-white), is under the same conditions practically the same as with animal glue, but not so agreeable as with casein. It must be

noted, that the same methods as are used in laundries to obtain a high gloss, have been adopted, viz., the surface is slightly moistened and then subjected to high pressure on a heated calander.

**Printing.**—The surface, coated with feculose, takes up the printing ink especially quick from the stones or cuts, and gives under same conditions effects, which are unobtainable in other ways. This action of the feculose paper has to be taken into consideration, as it many times has to suffer for this rather desirable peculiarity. This quick taking up of the printing ink can be reduced by addition of some rosin-size to the coating substance.

(Continued next month).



As we go to press, we learn that a representative of the Laurentide Paper Company is in Washington watching the reciprocity negotiations.

#### **SULPHITE SUPERINTENDENT.**—

With several years' experience in the States making bleached and unbleached sulphite, wishes to change. Experienced with various acid systems. References A1. Address, U. S. S., care of "Pulp and Paper Magazine."

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#### **NOTICE.**

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# The Pulp AND Paper Magazine of Canada

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Vol. 9—No. 2.

TORONTO, FEBRUARY, 1911

(Canada \$1 a Year  
Single Copy 10c.)

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## Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

**Subscriptions:** Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

**BIGGAR-WILSON, Ltd.**

**PUBLISHERS.**

Offices, Confederation Life Building,  
Toronto, Canada.

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### RECIPROCITY.

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(Continued from last issue.)

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The adoption of free trade in Great Britain and the withdrawal of the preferences allowed in favor of British colonies was a rude shock to the tender and undeveloped industries of British America, and this was all the harder to bear when, in the violence of the contest for free trade, British statesmen of eminence declared the colonies to be a burden, and appeared indifferent to their political, as well as their economic connection with the Mother Country. While the loyalty of the great majority of the people of the provinces stood the test

all through, the belief of the British people that free imports would be beneficial to the nation had its effect on the public mind in both Canada and the United States, and the most natural thing, when cut off from their advantages in the markets of the home land, was that the British American provinces should turn to their next-door neighbors and seek by mutual concessions to make up here what was lost in trade across the ocean. At that time the industries of the provinces were of a crude character, the people being engaged chiefly in fishing, lumbering, shipping and agriculture, with a little mining. The United States had developed its manufactures on a considerable scale in some lines, but the general disposition of the people, influenced by the free trade discussions in England, was towards a low tariff, especially as the new free trade policy of Great Britain was seen to lead to opening up fresh avenues of Anglo-American trade. There was a natural tendency to deal on a more liberal basis with the British colonies in North America, especially as men of foresight saw a prospect of large future trade in United States manufactures in exchange for the raw materials which Canada and the Maritime Provinces could supply and which the northern and eastern States needed in greater abundance. It would lessen the tariff friction between the States and



the provinces, which had been a cause of trouble as far back as 1806; while the fisheries had been the cause of constantly recurring troubles since 1818.

The question of reciprocity, which began to be earnestly discussed in 1846, interested only the eastern, northern and western States as a practical question; but in the Canadian provinces it was the leading problem of governments from the moment free trade was adopted in Britain. Had the home government taken the forethought to stipulate for reciprocity on behalf of these colonies when conceding free imports from the United States a comprehensive treaty would doubtless have been framed at once. That this provision had been neglected was a most serious aggravation of the condition in which the colonists were left, and many of the public men gave frank utterance to these grievances, which contributed to such demonstrations as the annexation manifestos of 1849. It was from the votes of the Southern States, however, that Canada got reciprocity, and the adoption of the treaty came about through an influence remote from the question of international trade itself. For years before the Civil War the question of State sovereignty, with the question of slave ownership linked up with it, was being thought out and determined by the people of the South. Though reciprocity bills had been defeated in Congress in 1848 and 1849, it was seen by the Southern representatives that the idea was not only favored by Great Britain and Canada, but was gaining ground in all the northern States, and, when the agitation for annexation began to develop, leaders of opinion in the South took quiet note of it, and foresaw that the

alternative to a reciprocity treaty might be a complete union of the Canadian provinces with the States, in which case the separatist movement in the southern States would be swamped by a new union element in the North. Then the southern Senators yielded and withdrew their opposition to the treaty, and thus in the decree of Providence, the motive which determined the southern States to secede, and which brought on the terrible Civil War, gave to Canada her desires without the sacrifice of her British connection, and, the economic waste of the same war, bringing up at its close new revenue problems, cut Canada off from her dependence on the trade of the States, and thus confirmed her against her wishes in the path of a separate existence as a nation. Besides the need of fresh revenue to pay off the war debt, there were other motives at work in the rescision of the treaty in 1866. One of these was the resentment of the northern people towards Great Britain and Canada for their sympathy with the under dog in the conflict, but this is only another illustration of the alienating effects of war, and serves to show that the law of retaliation does not benefit those who invoke its power.

The news of the repeal of the corn laws brought consternation to the merchants of Montreal, Quebec, Toronto, Halifax and St. John. Mr. Workman, president of the Montreal Board of Trade, described the situation in the phrase, "We are laboring under concussion of the brain." While Canadian cities were thus depressed, New York, Boston, Portland and Philadelphia were elated, and the prospects for expanding trade with Great Britain made the coast cities well disposed towards the Canadian provinces. There were selfish rea-

sons for this friendly disposition. The Intercolonial Railway not yet being in existence, there was no connection by rail between the Maritime Provinces and the Canadian provinces; and when in 1853 the railways of Upper and Lower Canada were amalgamated under the name of the Grand Trunk, it was to carry traffic, not to the seaboard of Nova Scotia or New Brunswick, but to Portland, Maine. The St. Lawrence canals could only accommodate vessels of 600 or 700 tons; Lake St. Peter had only a depth of 11½ feet in summer, and it was not till 1860 that it was dredged to a depth of 18½ feet. The Gulf of St. Lawrence had not yet lived down the name it had got as a dangerous route for ocean steamships. The Welland Canal had not been enlarged, and could only take vessels of 400 tons, and the railway and canal traffic from the western States and Upper Canada drifted naturally to New York and Boston, aided thereto by the British subsidy given to the Cunard line of steamers. For these reasons the United States seaports were already doing an increasing and profitable transit trade with Canada, and freer interchange of traffic would naturally tend to settle the business of the future in these channels. The merchants of the inland cities, such as Rochester, Buffalo, Detroit, etc.—as well as the industrial centres of New England, New York and Pennsylvania—stood to gain by access to the markets of Canada, and the western States, now filling up with new settlers, badly needed better shipping facilities to the Atlantic seaboard, which access to the Canadian canal system would give them.

On the Canadian side the case for reciprocity seemed still stronger. The first effect of the withdrawal of the British

preference by the repeal of the corn laws was a commercial depression, which deepened to such an extent that the population of some towns dwindled to one-half, and more than half of the merchants and manufacturers went into bankruptcy. Even the government was reduced by shortage of cash to pay its officials by debentures, which could not be exchanged at par. A market to take the place of that lost in Great Britain had to be sought, and here in the United States was one near at hand; the canal system, constructed at such heavy cost to a young and struggling country, wanted traffic, which the home market could not yet supply, and United States shipping could fill up the blank; the same problem applied to the railways.

Where the self-interest of merchants and manufacturers, the needs of the people and the requirements of the revenue on both sides of the line could all be harmonized by a reciprocal trade agreement, one would have thought that such an agreement would be reached within a year or two. But it took eight years of discussion and negotiation before the treaty was ratified, and when it was at last signed at midnight on the 5th June, 1854, as the last act before dissolution of Congress, "a ten-minute speech or the opposition of a single member would have killed it." "It passed simply because the country (the United States) was not prepared, on that last day of Congress, for such a possibility."

In the northern States political opposition to reciprocity yielded partly to the pressure of commercial needs on both sides, and partly to the belief that the new commercial relationship would

lead to political union. The South, believing with most Canadians, that reciprocity alone would satisfy the provinces, favored the treaty to keep them out of the Union, fearing their influence on the secession movement. The intuition of the South was correct, for, as soon as the treaty was negotiated, the annexation sentiment, which was never very deep, died out.

What were the tariff relationships between the two countries at this time and what classes of trade were affected by the treaty?

It is to be noted, in the first place, that the trade of the Canadian provinces did not rise from the dead by virtue of the reciprocity treaty. The interchange of goods had been increasing steadily for many years before. The United States returns showed that in the twelve years from 1821-32 the Republic exported of domestic goods \$30,997,417 and of foreign-made goods \$403,909 to the British North American provinces, while in the period from 1833-45 this export increased to \$54,082,537 of domestic goods and \$4,640,332 of foreign goods; while in the short period from 1846-53 the total was \$55,072,260 of domestic goods and \$22,020,252 foreign. In the period from 1821-32 the provinces of British North America exported to the United States \$7,684,559; in the period of 1833-45, \$23,356,275, and in the short term of 1846-53 it grew to \$36,753,592.

(Continued in next issue.)



#### **POLITICS AND FORESTRY.**

A strange attitude was taken by one or two present at the great Forestry Convention in Quebec last month in relation to the question of restricting the export from Canada of pulp-wood in an unmanufactured state.

When the resolution came up in favor of approving the action of the provinces which have already taken this step, these gentlemen took exception on the ground that such action would be political in its nature, and that the Canadian Forestry Association had, and should have, nothing to do with politics. Seeing that politics in its proper sense means the science of government and the forming of regulations by a country looking to the prosperity and advancement of its people, it is a little difficult to see how such a body as the Forestry Association, the main object of which is the preservation for the use of present and future generations of one of their main sources of wealth, can dissociate itself entirely from political problems. Possibly what the objectors referred to and found distasteful was any interjection of "party" politics, which, it must be admitted, do not always follow the strict ethical meaning of the word politics. Even on this, however, they must confess themselves on shaky ground. British Columbia, Ontario and Quebec already have restrictions in force, and the consensus of opinion is that these have acted in the interest of the country. The only province in which it may be deemed a live issue is New Brunswick, and in that case a favoring resolution was recently carried in the legislature, both sides of the House supporting it with practical unanimity. We think the opponents of such measures must feel themselves to be standing on but a very insecure foothold if this is the best argument they can bring against a resolution of this nature. They themselves admitted, even before the passing of the resolution, that the sentiment of the Forestry Association would be over-



whelmingly against their own views; nevertheless it was regretted by many present that at the convention there was no time in which to express this sentiment in manner fitting its importance. The resolutions were brought on only just before closing time, and no opportunity was given the delegates to properly discuss them. Was there no "politics" in this?

The truth is that politics in the broad sense enters in the most intimate sense into the problems at the very root of the Forestry Association's existence. How to take care of Canada's forest resources? That is the question at issue. To protect them against fire. That is one great means of conserving them. To protect them against wasteful lumbering methods. That is another means. And just here the lessons to be gained from the experience of our neighbor across the line should prove very useful to ourselves. The United States will, we believe, be cited by historians of the future as the nation which squandered the most enormous natural resources in the most ruthless manner and in the quickest time known to mankind. The people there recognize the general truth of this characterization already, and are making strenuous efforts to retrieve their position, or at any rate to prevent the waste from continuing. An important part of their propaganda for conservation is to make use of the raw materials of Canada, so that the remainder of their own may last the longer. Some of the most prominent advocates of Reciprocity in the United States advance the above doctrine as among the main reasons in favor of that policy. Yet, in spite of these facts and of all they mean for the future of our country, a few among us are to be found

opposing a course which will at all events render the usage of our resources for the benefit of another nation a slower process. And the remembrance that this use would be carried on by a people whose prodigality is proverbial may well make us hasten on in the direction of putting any available stopper on the process, so far as our own possessions are concerned. It is bad enough that our resources should be used up with needless extravagance by ourselves; it is worse when that extravagance is exercised by people from the employment of whose labor and capital we reap no benefit.

The Fielding-Taft proposals, if they go through, will increase the danger from this source many times over. It was never so necessary for the provinces to keep the check-rein on their wood and other raw materials as it will be under a reciprocity agreement. Hon. Clifford Sifton, in spite of past party ties, sees the menace clearly, and from his position as leader of the Conservation movement in Canada, calls a loud note of warning. To keep the question of provincial restriction of wood exports out of discussion by the Canadian Forestry Association, the body which, above all others, should make its views clearly known, would be to keep free from "politics" at the expense of statesmanship.



#### **PULP AND PAPER UNDER THE RECIPROCITY AGREEMENT.**

Since our last issue went to press the terms of the proposed trade agreement between Canada and the United States have been published. Everyone knew beforehand that pulpwood, pulp and paper would be a pivotal point in the

negotiations, but few on either side of the line were prepared for the announcement of changes that will affect so profoundly the general economic relations of Canada to the British Empire and the rest of the world as are involved in this agreement. The old treaty of 1854 was negotiated only after eight years of discussion and various tentative proposals had been made; and at that time the trade relationships were comparatively simple, for Canada was interested in the three primary industries based on fish, farming and the forest. After fifty-seven years, and when the trade and industrial interests on both sides are vastly more complicated and of vastly greater magnitude, it is hardly to be expected that two negotiators on each side, after less than three months of actual negotiations, could prepare an agreement for final acceptance or rejection without danger of running upon some hidden rocks that are likely to wreck great interests on either side. That these sunken rocks are already being disclosed is apparent in the pulp and paper trades, the woodworking industries, the milling industry and a number of others.

We are indebted to Mr. Breadner, whose letter appears in another column, for calling our attention to one of these snags involved in our relations with nations entitled to the "favored nation" treatment from Canada. Among a number of other countries, Norway and Sweden are entitled to the benefit of the "favored nation" clauses in trade relations with Canada, and consequently, if pulp and news print and other papers costing not more than four cents a pound are admitted from the United States free of duty, they must also be admitted free from Norway and

Sweden. This would mean that Scandinavian chemical pulp, which is already imported to some extent into Canada as well as the United States, surmounting the present duties, would demoralize both markets, and not only would this be done, but Scandinavian news print, Kraft brown, wrapping and cheap book papers would invade this market at the most critical time in the history of the home industry.

While this snag has arisen on the Canadian side, a more serious problem from the same source would have to be faced by the United States if this agreement goes through. Before the present pact was negotiated, and when the big stick of the maximum tariff was being held up by the United States against various nations, that government made a bargain with Sweden by which the little kingdom would get the benefit of the United States minimum tariff, provided all restrictions were removed on the export to the United States of pulp-wood. This bargain was arranged when it was still uncertain whether Canada would prohibit the export of pulp-wood, and it was a precaution which would leave a small avenue open in case the door was closed in Canada. Sweden met the United States in a very generous way, and, although the impost objected to was a purely domestic matter, and consisted of an annual tax levied on all wood pulp produced in the country, whether exported or not, the tax was repealed, and so in February, 1910, the benefits of the United States minimum tariff were given to Sweden. Now, if Sweden is allowed the benefits of the free trade arrangement with Canada, the exports of Swedish pulp and papers to the United States will be greater

than from Canada, and thus Canada will be cheated out of the benefits she is promised by the deal, while the United States will be faced with a kind of competition they never bargained for. On the other hand, if the United States Government, the moment it can serve its turn by a deal with Canada, violates the spirit of its deal with Sweden by refusing to apply the principle of the favored nation clause to Sweden it will be committing an act of repudiation which will augur ill for Canada in a like situation at a future time.

We thus arrive at a proof, at the very outset, of the deductions made in the series of articles on reciprocity in this magazine—that in any country that raises revenues by protective tariffs trade bargains of this sort are essentially a set of discriminations given to one nation at the expense of another, and preferences given in the domestic market to one set of interests at the expense of another set.

That these unjust preferences are instituted in the United States as well as in Canada by the proposed agreement is perfectly plain, when we note its operation in the pulp and paper industries. If there is one principle in the United States tariff that is more generally accepted than another it is that all producers and manufacturers are entitled to a fair share of the protection afforded. Now, the newspapers are by the very nature of their business protected to some extent without a tariff—where local news and local advertisements are a large feature of their make-up—and yet, by this trade agreement they are to have the benefit of free trade in the materials of their business, while the producers of that material—the paper mills—are to be forced up against

the conditions of free imports in what they have to sell while surrounded with high tariff conditions in all that they buy in machinery, mill supplies, chemicals, and in other industrial relations. And where it would be possible in some cases for certain mills to adjust themselves to the new conditions in time, those new conditions might be completely upset in a day by legislation in another country which they could not control without outraging that nation's right of self-government. Can these newspapers or any other class of the industrial community receive for themselves favors which are denied to other fellow-citizens without a loss of self-respect and a greater loss of respect for the authority of a government that maintains itself by such unfair discriminations? And the same breed of chickens will come home to roost on the Canadian side from the same causes.

And yet some legislators in both countries are deluding themselves and their people with the notion that on this foundation of preference and discrimination, cemented by greed of gain, they are going to build an edifice of eternal peace. It needs no prophet to foretell that on such a rotten foundation the peace that ensues will be like the uncanny calm that precedes the earthquake or hurricane.



The Canada Pulp & Paper Co., incorporated some months ago, with large waterpowers on the Saguenay River, have not yet commenced active operations. The question of pulpwood limits has evidently not been settled. Extensive areas in the Lake St. John region are likely to be acquired by this company. Probably other tracts on the lower Saguenay will be purchased.



**EFFECT ON CANADIAN MILLS.**

We have been asked by persons outside of the pulp and paper trades what the specific effect of the proposed trade agreement with the United States will be on the Canadian mills. These questions are answered in part by the interviews appearing elsewhere.

If the agreement is put into force on the lines proposed it will stimulate the present rapid extension of pulp mills in Canada for the reasons explained in another part of this issue. It will also stimulate the production of news print in Canada, although there are some news mills which will be injured. At this point the advantage to the Canadian manufacturer will cease. The free admission to Canada of papers up to four cents a pound will mean the closing up of mills running on cheap book papers, wrapping papers, coated papers and most other lines, or else the re-equipment of such mills to meet the new conditions. All such mills would have to get into some specialty to counter in the United States market the competition to be met in the Canadian market. In this struggle the Canadian mills when they were re-equipped and enlarged to cope with the greater market of the United States would have the advantage by reason of cheaper water power and cheaper wood, and the trade of both countries would be theirs, provided the condition was permanent.

It is to be remarked that no market in the world has been so subject to violent fluctuations in prices as that of the United States pulp market. Apart from this the danger of such an agreement is that it might be annulled at the whim of any administration on either side, and

if that were done the Canadian mills would be put to the expense of reorganizing their business to adapt themselves again to the former situation, and to laboriously seek to recover in foreign markets what they had lost in the United States.

Corresponding disturbances would take place in the United States. Many news mills would, under such an agreement, go to the scrap heap or else re-equip for the higher grades of paper with which they could assist in crushing the development of Canada in the more specialized lines.

As for miscellaneous paper products, such as paper boxes, paper tubes, paper plaster board, calendars, pads, wall papers, and the multitude of other items for which United States manufacturers are so scientifically equipped, these would sweep the Canadian market, and would, of course, be chiefly based on paper and pulp and paper boards produced in the States and not in Canada—that is as far as the higher qualities are concerned.

In a sentence, the agreement would stimulate the cruder and least valuable forms of the pulp and paper industry in Canada, and it would save to the United States the more valuable spheres of the industry by unrestricted access to Canadian crude and semi-crude materials. The whole situation would exist on the uncertain tenure of legislation beyond the control of the country affected.

So far as the agreement means a swift increase in the depletion of the forests of Canada, that is a problem on which opinions have often been given in this magazine, and that problem is of graver import than the fate of the pulp and paper industry itself.

## RELATION OF LOGS TO PULP AND PAPER.

There are many of our citizens—and some of them in our legislatures—who think that if a pulp industry is developed in Canada, all the other industries based on pulp will naturally follow, no matter what our tariff relationships to the United States or other countries may be. To make the evolution of these industries clear the accompanying illustration of a conventional tree is given. Nearly all industries based on the forest start with logs. From the logs we derive pulp and lumber. From lumber we derive all those materials that go into structural work and the woodworking industries that convert wood into a thousand different items for domestic and factory purposes. By the other main branch, pulp, we derive paper and the hundreds of other items in a great variety of industries in which paper and converted pulp is a chief component, or at least a necessary element. Here is a sort of industrial trinity, in which each of the three links is essential to the other. But it will be noticed that neither lumber nor pulp is an article of use for the general consumer, but is only the raw material for the immense variety of industries whose output reaches the people at large. It is, therefore, only in the last stage that the industry is so advanced as to touch the wants of the masses. It is in this last stage that by far the greatest capital is invested and the greatest number of hands employed.

One hardly needs the evidence of statistics to prove this when a look through a house, store or factory will furnish proof; but we may say that at the census of 1905 in the United States

the annual value of pulp manufactured for sale to paper mills was \$23,144,000, and the estimated value of all pulp, including that made in paper mills for their mill use, was \$57,630,000, whereas the annual value of the products of the paper mills was \$188,700,000 and the value of the products of the printing and publishing trades was \$496,000,000, and still we would have to add many hundred millions to this if we followed



the ramifications of paper into the hundreds of other miscellaneous industries. It is the same with the products of wood in other forms after they have passed from the secondary stage of lumber.

One has only to reflect on this in order to understand that these industries only reach their real importance when they are in form to touch the wants of the

people, and this is in the third stage of manufacturing. To tap this industry at the second stage and divert it across a boundary line is not national development. To establish a pipe-line, with pulp at the Canadian end and the more valuable finished products at the other end, dependent on this semi-crude material, and these connections subject to the hazard of legislation beyond the legitimate control of either side, is not a safe relationship.

Hence, if a tariff is to be applied at all in this business it should be directed to the chief purpose and not to the minor one.



#### SCIENCE vs. PRACTICE.

A little bit of the not unusual jealousy between Science and Practice, between the lumberman and the forester, was displayed at the forestry convention in Quebec last month. Dr. Fernow had been arguing from some scientific facts under discussion when one delegate rather tauntingly introduced some remarks which he said related to "unscientific facts." We fancy "facts" which are **unscientific** must be of a somewhat remarkable character, and suppose that all he meant was that they were something which had been observed by a man who prided himself upon being practical rather than scientific in his methods. Be that as it may, it is a pity that this misunderstanding should exist as to the meaning and purpose of forestry. Between science and practice there can be no real antagonism. Science is only systematized knowledge obtained from the best practice; and a large part of the art of forestry is only the best methods of lumbering based upon such science. As time goes

on, science and practice will be found to be one and indivisible. Slowly, but surely, as in every other industry, the man who sneers at advancing knowledge and vaunts the old-time rule-of-thumb methods, will be left in the rear. The trained, scientific man may sometimes make a mistake, for which he is laughed at by the practical man, but time and competition and the force of circumstances surely weed out those who do not take advantage of all the advanced knowledge available. This is why such men as Dr. Fernow can afford to keep cool and wait for their coming vindication.



#### BANKING SAFEGUARDS.

The collapse of the Farmers' Bank only accentuates what a good many people have been thinking for some time past. That is, that the Canadian banking system is by no means so perfect as most of the bankers have tried to teach the country to believe. For so long have they occupied the position of a class who, from an eyrie of wisdom, could look down upon the rash methods of ordinary business men that it comes with a shock to the community to learn that a bank could indulge in the wildest of wild-cat speculations without active interference until the bursting of the bubble.

It is true that the failure of one bank, with such disastrous effects to its shareholders, and perhaps its depositors, does not necessarily cast suspicion on other banks or upon their management. Through good luck and the generally high character for integrity possessed by their managers, such collapses as that which has come upon the Farmers



Bank have been very rare in Canadian history. But this does not strengthen the weakness of our banking laws, and for this weakness the Canadian Bankers' Association is largely responsible.

Either they should have the power and carry out a thorough system of inspection of banks, and be willing to bear the full responsibility for the same, or they should make no objection to this thorough inspection being carried on by some other authority.

At the present juncture we believe a large majority will be found opposed to the former of these alternatives on the ground that it throws altogether too much power into the hands of one class, already too powerful for the country's good. If a combine of wholesale grocers in restraint of trade be detrimental to the public interest, how much more detrimental must be a combine among the men who hold the nation's purse-strings? And is this not practically what the present situation of the banks amounts to? It only remains for the banks and railroads of Canada to get together for them to control the whole country, as they already do some of its largest interests.

The Banking Act can only be revised once every ten years—itsself an absurd anomaly, for why should banking legislation alone be allowed to continue in force for years after it may be proved injurious?—and if, as we understand, there is still time to make alterations in the 1911 revision, we would bespeak the immediate attention of the Dominion Government to the above matter. What is needed is, first, a system of searching inspection of bank management by some properly constituted authority outside the banks themselves; and secondly,

the enactment and enforcement of laws rendering it illegal to keep the affairs and true position of a bank secret from the public, which has given it its license to transact business. At the least, the commercial, manufacturing and agricultural communities demand legislation which shall give not more, but less, power to banks.



#### **PULP AND PAPER IN CONGRESS.**

John Norris, chairman of the American Newspaper Publishers' Association, was a witness at a hearing of the Ways and Means Committee of the House of Representatives a few days ago. Among other things Mr. Norris said that the attempt made by the United States manufacturers to coerce Quebec had been a boomerang, resulting in the withdrawal of 95 per cent. of that province's supply of pulp-wood, but the present bill by following the wood, not the province, would go far to overcome that difficulty. Free wood meant free wood products under the McCall bill. Manufacturers could not afford to handle wood taken from lands under an embargo, as their duty will be prohibitive in competition with products from free lands. The provinces were trying now to induce United States' manufacturers to build mills in Canada, and the United States was paying great sums in order to secure the necessary supplies of pulp.

His interpretation of the bill was that the United States paper going into Canada would pay 15 per cent. duty until all Canadian restrictions were wiped out. There was not, he said, any reciprocity in paper proposed, but the good faith of the two governments to bring it about by the removal of all restrictions possible could not be questioned.

"When the United States gets free access to the Canadian market," added Mr. Norris, "we will go in there and swamp the market. We will show them that the United States paper-maker under competition can beat the world in its own markets."



### THE FAVORED NATION TREATIES AND THE PULP AND PAPER TRADES.

Editor, Pulp and Paper Magazine:—

Under the Favored Nation Treaties made by the United Kingdom and Canada, any tariff advantages granted by Canada to the United States must also apply to:—

Argentine Republic	Norway
Austria-Hungary	Russia
Bolivia	Spain
Colombia	Sweden
Denmark	Switzerland
Japan	Venezuela

In respect to articles specified in Schedules B and C of the French Treaty, any tariff advantages granted thereon to the United States, must also be granted to France, Algeria, the French colonies and possessions, and the Territories of the Protectorate of Indo-China. If the agreement becomes law, further tariff advantages than provided in the French Treaty will be granted to France on:—

Cheese, garden, field and other seeds, not herein otherwise provided for, when in packages weighing over one pound, not including flower seeds. Grass seed, including timothy and clover seed; canned meats and canned poultry; extract of meat, fluid or not; peanuts, shelled or unshelled.

The agreement also provides that the following articles, the product or manufacture of the United States, when imported therefrom, shall be entitled to entry at French Treaty (Intermediate) rates:—

Tomatoes and cooked corn, in cans or other air-tight packages. (In respect to other canned vegetables, the French Treaty rate is  $\frac{1}{4}$ c. per pound below the rate mentioned in agreement). Macaroni and vermicelli; sugar candy and confectionery of all kinds; canned fruit; pickles, sauces and catsups; sardines packed in oil in boxes; knives for household and other purposes, plated or not; bells and gongs; brass corners and rules for printers; brass band instruments; clocks, watches, time recorders, clock and watch keys, clock cases and watch movements; feathers in their natural state; antiseptic surgical dressings specified in item 236 of tariff; printing ink; essential oils, n.o.p.; plate glass, not bevelled, in sheets or panes exceeding seven square feet each, and not exceeding twenty-five square feet each; motor vehicles, other than railway and tramway, and automobiles and parts thereof, not including rubber tires; grape vines, gooseberry, raspberry and currant bushes; musical instrument cases, fancy cases or boxes, portfolios, satchels, reticules, card cases, purses, pocket books, fly books for artificial flies, all the foregoing composed wholly or in chief value of leather; Portland cement; trees, viz., apple, cherry, peach, pear, plum, and quinces of all kinds, and small peach trees known as June buds.

The other articles enumerated in the agreement with the United States, if imported from France, will be subject to duty under the General Tariff.

The resolutions amending the Customs Tariff, 1907, also provided "that the advantages granted to the United States shall extend to the United Kingdom, and the several British colonies and possessions, with respect to their commerce with Canada. Provided, however, that nothing herein contained shall be held to increase any rate of duty now provided for in the British Preferential Tariff."

This means that the British Preferential Tariff shall in no case be higher

than the rates specified in the agreement; also that where the British Preferential Tariff is lower, said tariff will not be affected by the agreement. It also means that the articles enumerated in the agreement, when the produce or manufacture of Australia and a number of other British possessions, when imported therefrom will be entitled to entry into Canada at the reduced rates, while other articles from those possessions will be subject to duty under the General Tariff.

The following will illustrate the working out of the agreement:—

Butter, the produce of the United Kingdom, Australia, Denmark or United States, when imported from those countries, will be free.

Beans, edible, dried, the produce of the United Kingdom, Hong Kong, Austria-Hungary, Japan or United States, when imported from those countries will be free, but if imported from France, will be subject to duty at 25c. per bushel.

Canned vegetables, excepting tomatoes and cooked corn, were imported into Canada in 1910 from Great Britain, Hong Kong, Austria-Hungary, Belgium, China, France, Germany, Holland, Italy, Japan, Spain, and United States. In the event of the agreement becoming law, the following rates will apply if the produce and manufacture of the countries named, when imported therefrom, Great Britain, Hong Kong, Austria-Hungary, France, Japan and Spain, 1c. per pound; Belgium, Holland, Italy and United States, 1¼c. per pound; China and Germany, 1½c. per pound.

It may be stated, however, that importations of the articles named in the agreement have been principally from the United States, and therefore, the British Preferential Tariff has not been seriously affected.

R. W. Breadner,

Manager Tariff Dept.,

Canadian Manufacturers' Association.

—In another part of this issue will be noticed a summary of an official bulletin giving the production of pulp-wood and pulp in Canada in the year 1909. Mr. R. H. Campbell, Superintendent of the Forestry Branch of the Department of the Interior, is to be complimented on the completeness of the statistics given, and on the clear, logical manner in which they are presented. The only thing which detracts from the value of the bulletin is the delay in its issue and the lateness of the figures, which comes as a natural consequence. But for this the compilers are not to blame, one or two of the larger operators having failed to send in the amounts of their output until almost the end of the past year. We would urge the desirability of all firms sending in their figures at the earliest possible moment, in order to expedite the work of the Forestry Branch in this important department as much as possible, and in order to render the work of the greatest assistance possible. We understand that Mr. Campbell has recently sent out circulars to all lumber and woodworking firms in Canada asking for information as to their output for 1910. We trust that the above remarks as to pulp and pulpwood operators will be taken to heart by the lumber and woodworking companies, and that they will endeavor to comply with the request of the Ottawa authorities as expeditiously as possible.



—It is believed in Washington that the American Paper and Pulp Association may be indicted on the ground of its constituting a "paper trust." Special agents of the Department of Justice are finishing an exhaustive investigation of more than a year's duration into the alleged price-fixing agreements of the news print paper mills, which comprise the association. Various restrictions, so-called "trade customs," and concerted action in raising prices of paper are complained of.



## VIEW OF THE PULP AND PAPER TRADE.

Upon the proposed Fielding-Taft Agreement for Reciprocity with  
the United States.

Some of the following letters and interviews were obtained before the actual terms of the reciprocity agreement became known:—

**J. R. Walker & Co., Sault au Recollet Paper Co., Montreal.**—In answer to your request for an opinion on the reciprocity agreement, I am clear on the point of its being an uncalled for and untimely movement. As we grow older we learn to realize that when conditions are sound and satisfactory it is foolish to go into untried experiments. By it we have little to gain, and we may find out that there is much to lose. Besides, it is hurtful to British sentiment, which in my opinion counts for very much more than any little advantage which the treaty would give us.

**Eastern Paper Company, Limited., St. Basile Station, cc. Portneuf, Que.**—Considering the prosperity which exists in Canada among the farmers as well as the manufacturers, and taking into consideration that we have worked and found markets for our products, the time is badly chosen to give permission to the States to send in goods free of duty and the compensation of our sending goods free to that country is not worth the risk of losing the markets we have worked so long to establish. In short, we are against any agreement for reciprocity with the States at the present time.

**Hon. J. D. Rolland, of the Northern Mills Company, Montreal.** I believe that the clause in the reciprocity treaty between United States and Canada, admitting free the four per cent. (.04c.) book paper will be very injurious to the Canadian book and writing paper manufacturers on account of the advantage the American mills have over us in running large quantities of the same size and weight of paper, whilst the Cana-

dian mills are sometimes obliged to change the size and quality of paper two or three times a day on account of the comparatively small orders they have, which consequently augments the cost of the paper. I believe that if this clause is put in force it will be ruinous for most of the paper mills in this country. I expect that such will not be the case if our legislators will study the question seriously.

**F. F. Stucy, Old Lake Road, P.Q.**—J'ai votre lettre du 1er du présent: Re Reciprocité. A mon avis je crois que la réciprocité entre les U.S. et le Canada tel que proposée serait une bonne chose pour le Canada. Je vous permets de publier mon opinion.

**H. Biermans, gen. mgr., the Belgo-Canadian Pulp & Paper Co., Ltd., Shawinigan Falls, Que.**—From my point of view, as far as pulp and paper are concerned, I trust no change will be made. If the American mills are in need of our wood, it means they are also in need of our paper if they cannot get the wood. It is the duty of the provinces to protect their natural resources and to have the wood converted into paper here. It is also my opinion that free wood from Canada to the United States and free pulp and paper to the United States would be entirely to the benefit of the latter; under the circumstances, the Americans should have to pay the duty on Canadian paper.

**W. P. Cundy, Vice-President of Kinleith Paper Co., Toronto.**—If I properly interpret the proposed arrangement between the United States and Canada with reference to the free entry of pulp and paper to both countries, then it would seem that Canada proposes to give to the manufacturers of the United States their raw material which, when made into paper in the United States,

will then be received back again into Canada free of duty.

I cannot understand how there can be two opinions regarding a proposal of this kind. It is one of those jug-handled arrangements with which we have become familiar in England's negotiations with the people of the United States under which we get the shadow and they retain the substance—it is a plan by which we deprive ourselves of our greatest asset—our pulp, for which we receive the nominal price that is paid for raw material. The mills are built, the workmen employed, the capital invested, and the profits of manufacture all remain in the United States, and we, by admitting paper so made free, become instead of Canadian mill owners, mere paper jobbers for United States' mills.

What directly affects, however, the book and cheap writing mills of Canada is the clause which permits the free entry of pulp and paper up to 4c. a pound. If this had been 3c. a pound, the book and writing paper mills (which comprise three-fourths of the mills of Canada) would not have been so seriously affected.

With the price 4c. instead of 3c. or under, these mills will be absolutely 1 out of business.

Canadian book and writing mills have been equipped to take care of the smaller Canadian business where runs are short, and changes are frequent, and it would be quite hopeless for mills equipped in this way to compete with the gigantic specialized companies of the United States.

If the reports from Washington be true, there seems to be an opportunity for amending the proposals regarding pulp and paper, and I am very hopeful that when the facts are laid before the Hon. Mr. Fielding and the Hon. Mr. Patterson, such alterations will be made in the agreement as to save Canadian book and writing mills from the scrap heap.

**F. J. Campbell, Canada Paper Co., Limited, Windsor Mills, Que.**—I think the possible benefit from reciprocal ar-

rangements in paper and pulp has been more than nullified by setting the price limit for papers to be exchanged at 4c. per pound.

The limit of price in this respect has been practically recognized by both the Canadian and United States Governments at 2½c. per pound. Some years ago at the request of the publishers of this country a reduction was made in the duty on paper costing 2½c. per pound and under; in the same way, the United States Government recently reduced the duty on paper of this value and had an interchange been arranged on paper of the value of 2½c. per pound and under, I believe it would have been to the mutual benefit of each country.

Should the proposed arrangement come into effect, it would absolutely disorganize every Canadian mill making book and similar papers. It is doubtless true that by reorganizing and concentrating on separate lines of paper our mills could put themselves in a position to compete, but should this temporary arrangement with the United States come to an end, it would put these mills in a very awkward position in order to again adapt themselves to take care of the Canadian market.

**Alex. McArthur & Co., Limited, Montreal.**—It is our opinion that the injection of so large a disturbing factor into the commercial and natural life of Canadians, is at the present time, at least, a serious mistake.

Canada has made progress in recent years, as much as anything from the confidence that was inspired by a well defined policy of self-dependence and independence commercially pervading all enacted tariff legislation, backed up by repeated declarations from time to time by ministers of our government.

It is easily within the memory of most business men to recall and compare the timidity of our Canadianism of nearly twenty years ago, with what some people to-day term "bumptious" Canadianism.

The difference arises mostly from an exuberant sense of being in control of

our own affairs. So far as the public are aware, there has been nothing to indicate any well grounded reason for entering into the present treaty negotiations. Our banking and other financial authorities have invariably warned us of the danger of going too fast. If this new agreement is for any purpose, it must be to make us go faster. But, apart from this, it cannot be denied, much as some people may proclaim it, that the agreement cannot be regarded as a solvent of the true source of trouble, that is, the overwhelming influence of trusts, mergers and combinations of capital and of commerce in the United States particularly, and to some extent among ourselves. Our natural resources are so easily exchanged, so easily manipulated from either one side or other of the boundary line, that the control of the sources of supply can be directed from either side. It is not stretching the truth to say that, as far as circumstances have warranted it, that control of some lines in Canada has been pretty well gauged already. Would it not have given Canada much more value for their time, had the ministers devoted themselves to securing co-operative effort with our neighbors in solving the problem of how industries aggrandized and placed under the direction of monopolistic interests, should be controlled and regulated for the benefit of the people under both governments. In the past, the Republicans, as well as our present government, have both pretended at least to attempt to check the depravity of commercialism in that direction.

The least intelligent, if disinterested, can hardly advocate truthfully that reciprocity, as outlined in the agreement, will serve in the slightest degree against trust methods, or combinations. Rather does it become more perfectly clear that the tide just turned towards widening and covering the natural resources of the North American Continent, will gather force by its own momentum into wider channels and instead of assisting in the work of both governments in the

past, the reciprocity agreement will resolve itself into a reciprocity of trusts, and eventually, in the subversion of our present distinctive Canadianism to the plane and relation of the Hawaiian Islands or Cuba to the neighboring Republic.

**W. J. Gage, of W. J. Gage & Co., Limited, Toronto.**—As President of the Board of Trade, I have been endeavoring to do all I can to awaken a public sentiment that will lead to the safeguarding of our industries. As one of the largest industries of Canada, and one that must become increasingly important, it would seem like a calamity if anything such as suggested should interfere with the natural development of the pulp and paper industry.

**Jas. Davy, Pulp Manufacturer, Thorold,** expresses himself as opposed to reciprocity.

**A. MacLaurin, Montreal.**—As regards reciprocity, I am in favor of it, as I think it would be a good thing for both countries.

**G. D. Campbell, Campbell Lumber and Pulp Mills, Weymouth Bridge, N.S.**—According to a letter he addressed to a United States Consul, only believes in reciprocity which is truly reciprocal. 50 per cent. for 50 per cent., 20 per cent. for 20 per cent., free trade for free trade. And first of all, he believes in preference to Great Britain, then to the various parts of the Empire, and afterwards, may be, reciprocity with the United States.

**J. Ford & Co., Portneuf Station, P.Q.**—We would emphatically protest against letting wood go out of the country in the raw state.

**Jas. Beveridge, President New Brunswick Pulp & Paper Co., Millerton, N.B.,** is opposed to reciprocity.

**John R. Barber, of Wm. Barber & Bros., Limited, Georgetown, Ont.**—I think that we are all satisfied with things as they are at present, and next



to pulling well together in whatever we do, we should show the government that we are satisfied, by not asking for any changes in the present tariff. An election contest is not far distant in the United States, and it will be of advantage to all manufacturing interests if the government is assured that we are satisfied with things as they now are, and that we want no changes made of any kind.

**The Sault Ste. Marie Pulp and Paper Co., Sault Ste. Marie, Ont.**—We believe that if the United States had free importation of pulpwood they would be willing to remove the duty entirely from ground wood. While the removal of the ground wood duty would benefit us to a certain extent, we would, under no circumstances, approve of such a plan, as we believe Canada should retain her pulpwood to be manufactured at home. If we were manufacturers of paper, we, no doubt, would be firm believers in having all Canada's pulpwood manufactured at home into paper rather than that any of it should be exported to the United States either in the form of pulpwood or wood pulp.

**Mr. Werts, Manager of the Don Valley Paper Mills, Toronto,** is opposed to the whole idea of the proposed trade agreement. The large production of the big mills in the United States and their better equipped transportation facilities, put them at an advantage, especially when they have access to free wood from Canada. The mills of the Water-town district are geographically nearer to the markets of Ontario and Quebec and those of Wisconsin nearer to the markets of the Canadian West than our own mills, which is another important factor giving United States manufacturers an unfair advantage.

**F. A. Ritchie, of Ritchie & Ramsay, Limited, Toronto.**—There is no doubt that if the proposed reciprocal tariffs go into force, it will greatly disturb trade in this country, I think, to the detriment of Canadian interests generally. It will be a benefit to the coated

paper industry, though it will be a severe blow to the paper mills that are making the classes of paper which are used in Canada by coating mills.

**C. Jackson Booth, Ottawa.**—We should not give away such a great heritage as our pulpwood. If we allowed the Americans to take all they desired it would not be long before they had all our timber. Had our government acceded to the wishes of the United States, it would have given us free pulp and paper, but in a few years we might have to fight for our timber. My idea is that if they want our forest products they must come over here and build their mills. This is the place for them.

**T. Ryrie, of the Ryrie Paper Co., Toronto,** said that the present preference in favor of British papers would by the proposed treaty be withdrawn in all classes of papers that could be sold at four cents a pound or under. This would follow from the fact that any trade advantages given to the United States would automatically apply to Great Britain. Consequently, the British preference would disappear with the free admission of such papers. Certain Canadian mills would have the competition of British paper-makers to those of the United States, with the odds on the side of the United States. High-priced papers and special papers would not be materially affected.

**W. H. Rowley, of E. B. Eddy Co., Hull.**—Reciprocity of any kind at the present time is a mistake. There is absolutely no necessity for any change at the present time. Then we do not want anything done which would disturb our well understood trade policy with Great Britain, and it looks as though this new arrangement will do so. In a word, we do not want anything done which will lessen the full benefits which we give Great Britain under the preference. It looks like the beginning of commercial union between Canada and the United States—a union which would be of vast benefit to the United States and of no lasting benefit to Canada.

Such a step would mean the wasting of our forests, our fisheries, our lands, our fur bearing animals, our waterways and other public utilities, the same as they have been wasted in the United States. Our farmers and wheat growers of the West will become the victims of the same tactics that have been adopted in the States. That is to say, the States will take everything from us and replace nothing. Our lands will become barren, our forests denuded and our rivers dry. Nothing should be done which will disturb the life and energy of any industry in this country. Looking at the matter generally, I think it is a mistake. Anyhow, I do not expect the United States Senate will pass the agreement. They can't manage their own affairs; at least not in the same businesslike way we do ours.

**..Edward Lloyd, Limited, Montreal.**—Much discussion has arisen over the clause contained in the reciprocity treaty affecting wrapping and printing paper, valued at not more than four cents per lb. Should the treaty become law, there is no doubt that the Canadian mills making this class of paper will suffer considerably from heavy "cutting" and presuming that the same concession will be extended to Great Britain, this will still further harass the domestic papers. The most rational solution is the proposal to make the value of paper "not more than three cents;" this would narrow the grades down to "News," and would save the market from a catastrophe.



#### RESOLUTION OF PULP AND PAPER MANUFACTURERS.

The following is the text of the resolutions of the pulp and paper manufacturers passed at the recent convention of pulp and paper manufacturers of Canada held in Montreal, as summarized in our issue of December:

Moved by Senator Rolland, seconded by J. R. Walker: That it is the opinion of this meeting, that, working in harmony with the recent action of the Government in appointing a commission for the conservation of our natural re-

sources, the protection of our forests is one of the first interests of this country, as tending to equalize the temperature, to protect Canadian soil from impoverishment, to maintain the efficiency of its water powers, and to provide a lasting supply of wood for timber, paper making, and for other purposes, and that any tariff arrangements should be framed with the object of conserving our forests as a first consideration:

That further legislation with the object of conserving our forests should be so framed that our home industries based on the use of timber, of wood, and of wood products, should receive such consideration as to enable Canada to enjoy the use of this raw material either exclusively or on a preferred basis as compared with similar foreign industries:

And that, in view of the present prosperous condition of Canada, the time is inopportune for negotiations with the United States, which may have the effect of disturbing existing trade arrangements, developed in recent years, under which Canada has seen her greatest prosperity.

The above resolutions have been forwarded to Sir Wilfrid Laurier and the Minister of Finance.



—The protest of the Scandinavian-American Trading Company against the rate of countervailing duty assessed on bleached chemical wood pulp and mechanically ground wood pulp imported from Sweden is sustained by the United States Board of General Appraisers in a decision filed January 13th. The former was assessed at the countervailing duty of \$0.0000694 a pound, under the proviso to Section 406 of the Tariff Act of 1909, and the latter at the rate of \$0.0000486 a pound, under the same proviso. It is held that the correct rate of the countervailing duty is \$0.0000608 a pound on the bleached chemical wood pulp, and \$0.0000365 a pound on the mechanically ground wood pulp.

### AMERICAN PAPER AND PULP ASSOCIATION.

The annual meeting of the American Paper and Pulp Association will take place on February 16th at the Waldorf-Astoria Hotel.

At the business meeting it is expected that the Hon. H. S. Graves, Chief Forester of the United States, will address the members on the broad question of forestry, and there will also be an address by Walter McCulloch, engineer of the Water Storage Commission of the State of New York, on water storage. There will also be general discussion of matters pertaining to these topics, as well as general trade interests.

Luncheon will be served in the East Room at one o'clock, to which all attending members are invited.

The annual banquet occurs in the evening of the 16th at 7 p.m. sharp, the reception to be held at 6.30 in the Astor Gallery of the Waldorf.

The guests of the evening will be the Hon. John A. Dix, Governor of the State of New York; H. W. Stryker, president of Hamilton College, Clinton, N.Y.; Hon. Almet F. Jenks, Supreme Court Judge of the State of New York; Hon. Neil Brown, of Wausau, Wis.; Frank Shattuck, Esq., of Philadelphia, Pa., and Hon. Henry S. Graves, Chief Forester of the United States, Washington, D.C.

The preliminary meeting of the different sections of the paper trade will occupy the whole day of February 15th.

The chairmen of the committees in charge of the banquet are: W. N. Caldwell, Banquet Committee; A. C. Paine, Jr., Ticket Committee; Arthur E. Wright, Banquet Arrangements; Hon. Clarence I. McNair, Committee on Speakers; Louis Chable, Souvenir Committee; and A. N. Burbank, Reception Committee.



The Spanish River Pulp and Paper Mills purpose starting work on the erection of news print and sulphite mills as soon as the snow is off the ground.

### THE PROPOSED AGREEMENT IN PULP AND PAPER.

The following is the text of the proposed trade agreement between Canada and the United States as it relates to pulp and paper. If the agreement goes through, pulp and paper are to be free of duty on both sides under the following conditions:—

Pulp of wood, mechanically ground; pulp of wood, chemical, bleached or unbleached; news print paper, and other paper and paper board, manufactured from mechanical wood pulp or from chemical wood pulp, or of which such pulp is a component material of chief value, colored in the pulp or not colored, and valued at not more than four cents per pound, not including printed or decorated wall paper, free.

Provided, that such paper and board, valued at four cents per pound or less, and wood pulp, being the products of Canada when imported therefrom directly into the United States, shall be admitted free of duty, on the condition precedent that no export duty, export license fee or other export charge of any kind whatsoever (whether in the form of additional license fee or otherwise), or any prohibition or restriction in any way of the exportation (whether by law, order, regulation, contractual relation or otherwise), directly or indirectly, shall have been imposed upon such paper, board or wood pulp, or the wood used in the manufacture of such paper, board or wood pulp, or the wood pulp used in the manufacture of such paper or board.

Provided also, that such wood pulp, paper or board, being the product of the United States, shall only be admitted free of duty into Canada from the United States when such wood pulp, paper or board, being the products of Canada, are admitted from all parts of Canada, free of duty into the United States.

The Canadian Minister of Finance interprets the agreement as follows:—



The United States will admit, duty free, pulp and paper from wood cut on private lands in Canada. The manufactured product of pulp-wood cut on Crown lands, on which the Canadian provinces place an export duty, will continue to come under the United States countervailing duty until the provinces remove their pulp-wood restrictions. Canada, on the other hand, will admit United States pulp and paper free to this country only after the United States admits free these commodities from all lands in Canada. In other words, while the Canadian provinces impose the export embargo on their Crown lands wood, the United States will maintain their import duty on pulp and paper made from this wood, so as to prevent United States manufacturers moving into Canada, manufacturing from Crown lands wood here, and shipping across the border, and, while the latter condition exists, there will be no free paper or pulp allowed to come into Canada from the United States.

Since the above announcements were made the reciprocity bill has gone through the Ways' and Means' Committee of the House of Representatives, and has been there changed in a very important respect. The pulp and paper clause is removed from the reciprocal list and made a separate section at the end, thus having the effect of being an enactment of the United States alone.

"We leave Canada to deal with the entrance of pulp and paper into that country as it sees fit," explained Mr. Hill, a member of the committee, "Pulp-wood is made free, and any product of pulpwood up to four cents a pound is free from any part of Canada if it is made from land on which there are no restrictions." This will admit free pulp and paper from wood cut on private lands, even in Ontario and Quebec, where there are restrictions prohibiting the export of pulpwood cut from Crown lands.

On the 13th inst., a deputation went to Ottawa, representing the St. Lawrence Paper Manufacturing Company, of Corn-

wall, the Toronto Paper Manufacturing Company, the Montrose Paper Company, the Kinleith Paper Company, the Georgetown Paper Mills, (Wm. Barber & Bros., Limited), the Northern Mills Company of Montreal and St. Adele, the Canada Paper Company, John R. Booth, the E. B. Eddy Company, and the Laurentide Paper Company. The deputation called on the Minister of Finance and showed the inequitable operation of the proposed agreement to the mills on both sides, where a line was drawn for free admission of paper at four cents a pound. The Minister of Finance did not make any promises to the deputation.



—At a meeting on the 7th February the Board of Trade of Niagara Falls, N.Y., went on record as opposed to such clauses of the proposed reciprocity agreement as affect the print paper industry, the importing into either country of print paper, pulpwood and wood pulp. The meeting was largely attended. The resolution which was adopted was offered by Nelson J. Bowker, of the Pettebone Cataract Paper Company, and it protested against the enactment of the agreement by the United States Congress until the objectionable clauses were eliminated. A. H. Hooker, of the Hooker Electro-Chemical Company, called attention to the fact that the proposed agreement would be disastrous to the print paper industry in this country if it became a law, and that this would materially affect his business as well as that of the Castner Electrolytic Alkali Company, both of which manufacture bleaching powder used in the manufacture of print paper.

\* \* \*

Last month, W. H. Rowley, of the E. B. Eddy Co., was driving home in his sleigh when the rig collided with a street car. The sleigh was capsized and the driver thrown upon Mr. Rowley, who was dragged a distance and severely bruised. He was confined to his home for two or three weeks, but is now able to be at his office.

## THE FORESTRY CONVENTION

(From Our Special Correspondent.)

Quebec City, Jan. 20, 1911.

There must be something of a peculiarly fascinating quality in forestry which attracts to it men who have no special pecuniary stake in the solution of its problems. As a matter of fact the science and art of forestry have a very direct bearing on commercial matters, as lumbermen have already learned and will, in the course of the next few years, find more and more potently. Others, too, are yearly becoming more cognisant of the truth that on the preservation of an appreciable percentage of forested spaces, depend the keeping up of the soil on which the very sustenance of the people hinges, and the maintenance of the water powers which have so much to do with the industrial prosperity of the country. But besides these classes of men, the study of forestry seems to draw to itself the keenest interest on the part of men in all walks of life who happen to possess in their hearts the love of natural things, and the thoughtfulness which looks to the welfare of future generations as only the continuation of the duty which they owe to the present. At the great convention of the Canadian Forestry Association, called by Sir Wilfrid Laurier, and which has just closed in the fine edifice of the Quebec Legislative Assembly, there was a splendid attendance of lumbermen, and those responsible for forest legislation, while many leading manufacturers, business men, and others were present who represented the growingly insistent call for proper measures to be taken for the conservation, rather than frittering away, of this great source of our national wealth. The interest in the proceedings was intense and it may be truly said that the meeting was the most successful ever experienced by the Association. For this success, a word of hearty praise must be awarded to Mr. Jas. Lawler, the energetic and obliging Secretary.

The convention was opened on the morning of January 18th ult., in a few well chosen words by His Excellency, the Governor-General, and the chair fittingly occupied by the genial Senator W. C. Edwards.

Sir Lomer Gouin, who, as head of the government of Quebec, has displayed his keen desire for the preservation of forest resources in the most practical manner possible during the past year, welcomed the delegates as the heirs of the pioneers who first discovered the forest wealth of Canada in the Province of Quebec. He assured them that Quebec was in entire sympathy with the movement. "We want," he said, "to conserve our forest for its beauty and riches, and the good thoughts which it inspires. We want to leave our natural resources to our successors not only as intact as possible but in the most advanced stage of development possible."

His welcome was seconded by Hon. J. M. Tellier, leader of the Opposition.

The first morning of the convention was largely taken up with inauguration ceremonies and in getting ready for the business of the session. Among the speakers were Hon. Sydney Fisher, Dominion Minister of Agriculture; Dr. Peterson, of McGill University; Dr. Torv, of the University of Alberta; Dr. Briscoe, of the University of Maine; Chancellor Jones, of Dalhousie University; J. G. Peters, of United States' Forest Service; Rev. C. P. Choquette, Mr. Judge Willrich, American Consul at Quebec; Dr. J. T. Ruthrock, of Pennsylvania; Hon. W. C. R. Grimmer, Surveyor-General of New Brunswick; B. C. Goodeve, of British Columbia Government; G. A. Vandry, President of the Board of Trade of Quebec, and Joseph Picard, President of the Manufacturers' Association, Quebec Branch.

At the afternoon session Hon. Clifford Sifton referred to the idea expressed by a speaker at a previous convention to

the effect that no particular results had followed the forestry movement. He pointed out the error of this view and showed how the government had voted sums of money, which had been followed already by good results. Instances were given in the creation of a forest reserve on the eastern slope of the Rocky Mountains.

The territory between Sudbury and Port Arthur, he claimed, was a disgrace to Canada, since it was destroyed by fire, and the Ontario Government could establish a good park there and place a guardian thereon, and within twenty years it would be a substantial revenue to Ontario. Canadians were as a rule rather impatient as to time, but the Americans, remarked Mr. Sifton, had been working for 25 years to form the Appalachian park, and had no idea of giving up.

As regards forest fires, Mr. Sifton told how last year the Conservation Commission had appointed a committee to draft amendments to the present railway Act, and it was decided that if railway companies started fires they would have to pay \$1,000 fine, and the companies would not be relieved of the fines unless they could prove that their line was patrolled and that they were provided with all the fire appliances. If forest fires could only be prevented, it meant a great deal for the Dominion. Last year two men had been sent out to investigate the cause of forest fires, which had been considerable in the province of Quebec, and it was discovered that 171 forest fires had occurred last year, but no serious damage was caused. Seventy-five of these fires had been caused by railways. In Ontario 404 fires out of 432 had been caused by railway locomotives; 1,227 fires had been caused in the Prairie Province last year, out of which 184 had been ascribed to railways.

Some exception was taken to this on behalf of the railroads, they claiming that they were blamed unfairly sometimes and that they had already done considerable work for the prevention of fires.

R. H. Campbell, Deputy Minister of Forestry, remarked that the damage done to forests by railways under construction was one hundred times more than that caused by existing railways.

E. H. Hall, secretary of the association for the protection of the Adirondacks, remarked that the majority of fires were caused by the carelessness of railway companies, although it did not follow that the latter, in many cases, were responsible for starting the fires. The lock-out stations in the Adirondacks had worked most satisfactorily, as through a telephone system immediate notification could be given when a fire started.

Hon. Jules Allard, Minister of Lands and Forests, Quebec, gave a few words on the organization of the forest service in that province, also on the efforts being made by his government to form a body of young foresters, under the able direction of G. C. Piché, who underwent considerable experience in the United States.

R. H. Campbell, Dominion Superintendent of Forestry, in an eloquent paper, said:—The supreme question to be first settled in connection with Forest Administration is this: Is the forest to be a permanent factor in our civilization, or is it to pass out of the life and activities of the nation? To the latter alternative an everlasting No! is given by the increasing demand for the products of the forest, by the great value to the nation of the lumber and pulp industries, by the streams flowing from the forest watersheds, and turning the wheels of commerce or refreshing the thirsty land and the teeming cities, by the pleasure of the forest resorts and the sturdy and industrious population growing up in its healthy occupations, and the vast tracts of rocky and non-agricultural land throughout Canada. We are beginning to feel the drain on our forest resources, although our production of lumber in 1909, 3,814,942,000 feet B.M., was only one-ninth of that of the United States in 1908. The cut of spruce was larger than for any other species, namely, 1,124,949,000 feet B.M.,



but did not quite equal that in the United States. White pine was second with 1,046,783,000 feet B.M., and it seems as if it had nearly reached its maximum, although the cut is only one-third of that in the United States. British Columbia species, Douglas fir, hemlock, cedar, come next, and lift that province to second place in Canada among the producers of lumber. It seems to be clear that, while we are cutting as lumber only a fraction of what the United States are, we are cutting largely of inferior species, or are shifting our activities to the last west. He then took up the main points to be considered in policy and practice to ensure the maintenance of the forest as a permanent and effective factor in our civilization.

J. G. Peters represented H. S. Graves, Chief United States Forester, who was unfortunately unable to come. Mr. Peters has had charge of the co-operative methods between the Federal and State Governments and individuals.

Aubrey White represented the Ontario Government, and in an exhaustive and valuable paper described the conditions in regard to lumbering in Ontario and the change in the methods of sale from the bonus system to the plan of selling at so much per thousand feet on the stump. He also spoke of the reorganization of the fire fighting service of the province and what had been done in regard to making permanent forest reserves and in extending Algonquin National Park.

Hon. A. K. McLean, Attorney-General and Commissioner of Lands of Nova Scotia, dealt with the results of the forest survey of the province made during the past two years under the direction of Dr. B. E. Fernow.

Hon. W. C. H. Grimmer, Surveyor-General of New Brunswick, told of the importance of the forests as revenue producers and the measures that are being taken to protect them, especially from fire.

The evening was devoted to the enjoyment of a sumptuous banquet, given

to the delegates of the Québec Government, Premier Gouin occupying the chair and pleasing all present by the felicitous manner in which he carried out his duties.

#### Jan. 19th.

The first item on the programme was an address by Hon. Sydney Fisher, who dealt with the importance of the forest to agriculture, leaving the impression that great as was the value of the forest as a timber producer its value as a protector of agriculture, navigation, and water powers was even greater.

Protection against fire was the main theme of the addresses in the morning's session, the discussion being opened by an attentively-listened-to paper by W. C. J. Hall, Superintendent of Forestry for Quebec. He referred to the danger points near settlers' clearings and along the lines of railroads and urged the development of municipal effort in organized districts and the adoption of mountain-top look-out stations in large areas.

If the total value of the standing timber in the United States and Canada were estimated, and the respective governments called upon to pay an insurance premium thereon at the lowest first-class rate, the figures would be astonishing, when compared with what is expended now in forest protection.

If a lumberman holds 500 sq. miles of territory, valued at \$500 per mile, the total value would be \$250,000; this insured at  $\frac{1}{2}$  of 1% would call for a premium of \$1,250. In this province we have 175,000 sq. miles of forest reserve alone; if we value it at \$250 per mile the total would be \$43,750,000 (less than 39 cts. per acre). The premium on this asset, at  $\frac{1}{4}$  of 1%, would come to \$109,375 per annum. In New York State they expend  $1\frac{1}{4}$  to  $1\frac{1}{2}$  cts. per acre for forest protection. If we spent \$109,375 per annum in protecting our reserves only, the assessment would come to something less than one cent per acre.

E. E. Ring, Forest Commissioner for Maine, who has done much for fire protection in the direction of establishing look-outs and telephone lines, followed with a few remarks.

E. G. Joly de Lotbinière, Quebec, described various methods of disposing of the debris left after lumbering operations and came to the conclusion that the best way was to strip the tops of all branches and spread them on the ground, where they became crushed and moist. All dead trees should be felled.

G. Dunlop, of the C.P.R., and other representatives of railways, who found the feeling of the meeting distinctly against the railroads, on the score of their responsibility for the starting of many destructive forest fires, did their best to combat this feeling by describing the methods which they had adopted for preventing and combatting fires.

Hon. E. H. Bronson, the prominent Ottawa Valley lumberman, contended that a careful survey should be made of all unorganized districts, and those suited only to tree-growing set apart strictly for lumbering on modern conservative lines. He gave a number of instances to prove that when settlers went into lands not fit for agriculture the inevitable result was the destruction of timber and the abandoning of the district as a farming country in a few years. He also concurred in the view that where railways ran through forest tracts they should be compelled to use locomotives burning oil for fuel. He brought out the point that as by far the greater part of the value of timber products represented the wages of labor, no person in the country was so much interested in the proper conservation of the forests as the working man.

The report was presented of the committee on Forest Fire Legislation. It analyzed the different laws existing in the various provinces. Proper organization of protective service is more efficient than legislation, and the latter should not be specific, but allow wide latitude in making rules and devising methods; the value of watch-towers and

telephone lines; railroad responsibility; to change the attitude of the people at large—these were the main points of the report.

A. C. Flumerfelt, of the British Columbia Forest Service, told of the new methods recently adopted in that province.

G. C. Piché, who is imparting to his native province the benefits derived from his studies at the Yale Forest School and other experiences in the United States, told of the present regulations of Quebec and how they were endeavoring to have them carried out. He also showed the gain both to the revenue and to the condition of the forest by the enforcement of diameter limit, the low cutting of stumps, etc.

Mr. Piché classed the forest lands of this province in three categories: Private lands, alienated lands, and Crown lands. The private forests cover six million acres, containing an equal amount of hard and soft wood which is valued at \$25,000,000 and gives an annual revenue of \$3,000,000. The private forests were very badly administered, however, and it would be advisable for the government to enact a law to prevent their ruin. Instead of selling properties for unpaid taxes the municipalities should keep them and reforest them.

The alienated property covered an area of forty-five million acres which since 1887 had brought the province \$5,170,000 for rental; \$20,300,000 in stumpage dues; \$3,250,000 for sales by auction; and \$580,000 for penalties. There were eighty million acres of forests on the Crown Lands, of which the Forestry Service had charge, and in the territories not yet surveyed they proposed to make a superficial survey to determine if they should be divided into farm lands or not. It was also purposed to have the limit holders have an inventory of their property in order to cut wood in a more scientific way.

Forestry education was dealt with by the representative of Laval, the latest University in Canada to establish a forestry course, by Dr. B. E. Fernow, Dean

of the Faculty of Forestry of the University of Toronto, and by Dr. Cecil C. Jones, Chancellor of the University of New Brunswick, where a forestry course was established some three years ago. Avila Bedard, professor of silviculture in the University of Laval, and a graduate of Yale Forest School, described how the course in forestry was adapted to the conditions prevailing in Quebec.

#### Jan. 20th.

Arthur Amos, C.E., Provincial Hydraulic Engineer for Quebec, spoke on Quebec's water powers.

R. W. Brock, director of the Geological Survey of Canada, brought out the fact that all mining requires wood. It does not require high-class lumber but cheap pit props it must have, and this class of timber is the kind most apt to be destroyed.

E. J. Zavitz, Forester of the Ontario Department of Agriculture, in charge of the nurseries from which the farmers of Ontario get the supply of trees for their woodlots, described methods of reforestry which have been adopted on the sandy lands of Norfolk County.

Achille Bergevin, Montreal, President of the Fish and Game Protective Association of Quebec, dealt with this great asset, especially as a developer of tourist travel.

The following resolutions were presented by the committee appointed for that purpose:—

In case of a fire started by a locomotive, whether through negligence or not, the company making use of such locomotive shall be liable for such damage and may be sued for the recovery of the amount of such damages, in any court of competent jurisdiction.

Provided that if it be shown that the company has used modern and efficient appliances and has not otherwise been guilty of negligence, the total amount of compensation recoverable shall not exceed five thousand dollars.

The association commends the action of the Province of Quebec in employing technically trained Foresters in its

service, and recommends to the other Provinces of Canada the importance of this policy.

This association desires to record the great loss sustained by Canada and the Province of Quebec in particular, by the death of one of its most esteemed and valued members, Monsignor Laflamme, who, through his devotion and untiring efforts to promote the objects and aims of this association, earned the gratitude and admiration of all those having the welfare of the Dominion at heart.

This Association approves of the action of the Governments of Ontario, Quebec and British Columbia in requiring that timber cut on Crown lands be manufactured in Canada and that it would be pleased to see the other provinces following their example.

These, as well as the usual resolutions expressing heartily felt thanks to the representatives of the Quebec Government, who had done so much for the comfort and pleasure of the delegates, were carried practically unanimously, and the convention then concluded.



The dam and entire hydraulic work at International Falls, Minn., and Fort Frances, Ont., are completed. The American pulp mill and four machine paper mill are completed and in full operation, producing one hundred and eighty tons of news print paper daily and forty tons of surplus sulphite pulp. The electrical installation on the Canadian side is completed. The Canadian power-house is completed and ready for the installation of the Canadian pulp mill. The above represents an outlay of \$5,000,000. Construction work has already started for the Canadian pulp mill, which will have a daily capacity of from 100 to 140 tons of paper. A very heavy additional outlay is to be put on the Canadian development after this improvement is completed. Additional machinery will be installed on the American side.



## WOOD PULP TRADE IN SCANDINAVIA.

C. E. Sontum, Canadian trade agent at Christiania, writes as follows:—

The production of sulphite cellulose in Norway and Sweden, including bleached pulp, was:—

In 1906 .....	about 400,000 tons.
In 1907 .....	“ 518,000 “
In 1908 .....	“ 623,000 “
In 1909 .....	“ 558,000 “
In 1910 .....	“ 720,000 “

estimated.

The market for sulphite closes for the year apparently unchanged as in the beginning of the year, viz., quiet and depressed, and prices have been so low that for many mills it is a question, if they get their money back on current log prices.

A slow and almost imperceptible change has, however, been going on. The last of the many mills that have been building in recent years in Norway and in Sweden have either been completed or they will be finished in the near future, and as far as known, no new ventures in this branch are at present being planned. The consumption is, however, increasing, and the result is that the time is drawing near when the supply will be balanced by the consumption. Stocks at the Scandinavian mills have not grown during the year, the tendency has rather been towards a reduction. At different times there has been a rather better enquiry and makers have commenced to hope that the long period of depression was drawing to its end, but these spurts have been only very shortlived, and the market has settled down again to its monotonous dull level, interrupted occasionally by quite unnecessary demoralization when some of the new mills have tried to force sales of their unknown brands on unwilling buyers. For good easy bleaching qualities prices are at present about \$34.67, or slightly less for cash f.o.b. with “strong” at \$2.67 per ton less.

For the Norwegian mills the year 1910 will no doubt, financially, be the worst of this period of depression, because their old long-time contracts at higher prices have probably all run through, and nearly the entire production has, therefore, had to be marketed at very low prices. At the same time the wood which they have used in 1910 has been dearer than in any previous year in the history of the Norwegian cellulose industry. As log prices for the coming winter have again advanced considerably and there is, unfortunately, no prospect that the Norwegian makers shall be able to secure logs on the same terms as their competitors in Sweden and in the German Baltic provinces, future prospects are far from good. The Norwegian mills will have to rely more and more upon the production of better grades of pulps.

The market for sulphate, which has been relatively better during the year than sulphite, has recently become more depressed, mainly as the result of the largely increased production in Finland.

The export of cellulose from Norway to the end of October was:—

	Dry tons.	Moist tons.
1910 .....	157,086	1,507
1909 .....	130,055	3,608
1908 .....	125,747	5,266

The price of the mechanical pulp, which had touched \$12 for prompt in April of last year, on account of water scarcity both in Norway and the north of Sweden, weakened during the second half of the year to \$9.73 for prompt and \$9.47 for 1910, at which figure business was reported at the beginning of December. The cause of this weakness was the increased producing capacity in Norway and a still greater increase in Sweden.

Sellers as well as buyers were therefore prepared for a fall in prices during the current year, but it is now thought at the turn of the year that pulp would be sold during February at \$8.53 or less. And from that time right through the

year the market has suffered from utter depression, and prices have crumbled away until, finally, a mill which had a large stock accepted in the summer \$6.80 f.o.b., and others, in order to make a clearance, sold at \$6.95. Most mills held out, however, even at the worst, for \$7.20 as their irreducible minimum.

#### Output Reduced for Periods.

Nearly all Norwegian makers have reduced more or less their output, some having stopped altogether for longer or shorter periods, and in spite of the fact that the aggregate producing capacity has been increased within recent years, the export from Norway has remained practically stationary this year compared with the two last years.

At present there are no signs of a definite change in the market position, although a great water scarcity is reported from Swedish Norrland, but it may be supposed that the consumption of pulp will grow rather rapidly if general trade improves as expected. And so far as the Norwegian makers of mechanical pulp are concerned, they are likely to hold back as much as possible, because they have to pay from year to year more for their logs.

For contracts over 1911 Norwegian makers at present generally quote from \$8.53 to \$8.80, while more is asked for delivery over 1912.

#### Exports of Mechanical Pulp.

The export of mechanical pulp from Norway to the end of October was:—

	Dry tons.	Moist tons.
1910 .....	15,510	383,168
1909 .....	15,921	370,413
1908 .....	17,000	383,200

#### Norwegian Paper Trade.

The dullness on the paper market, which was a characteristic of 1909, has continued also in the current year, and in news particularly contracts have been made occasionally at prices which have

been as low as the lowest of any previous period of depression. The cause is mainly an increase of production, partially due to the building of new mills, partially to modernizing old machines. And although it is safe to assume that the consumption has grown at the usual rate—indeed, in some of the oversea markets more rapidly than is usually the case—the enlarged production has fully kept pace with this increased consumption, and, consequently, no advance in prices has been obtainable. With the new mills and enlargements of old ones which are expected, no improvement can be reasonably anticipated in the near future as the market for news is concerned, unless something extraordinary should happen. Prices have, therefore, decidedly moved in buyers' favor, and, tempted by the low prices that have ruled, they have been inclined to cover their requirements for rather a long time ahead.

#### Wrapping and Printing Supplies.

Neither have the conditions been much to boast of for wrapping papers. At the beginning of the year it looked as if an improvement might be anticipated, and there was much doing, but not sufficient to make it possible to obtain a price advance. For some sorts prospects are now less satisfactory, as a couple of new mills have been started and have thrown their output on the market.

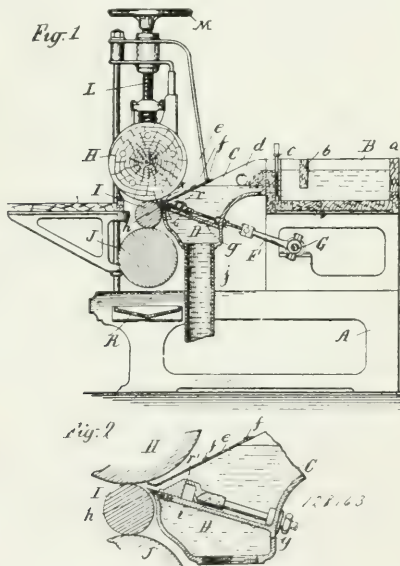


The pulp and sawmills of the Campbell Lumber Co., at Weymouth, N.S., were practically destroyed by fire recently, at a loss of something like \$50,000. The mill was destroyed and all the machinery except some grinders and flume turbines, rendered useless. The origin of the fire is a mystery. About \$15,000 worth of new machinery was installed only last fall. The capacity of the plant for pulp was 30 tons daily. The mill is likely to be rebuilt of concrete. Total insurance on building and plant was \$38,000.

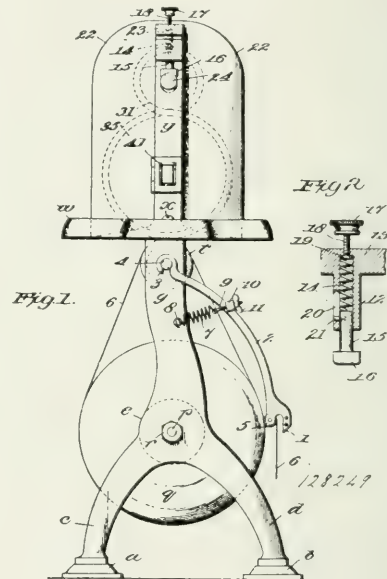
## Recent Canadian Patents Affecting the Pulp and Paper Trades.

### No. 128163. Apparatus for Treating Pulp.

H. E. Tidmarch, Sandy Hill, N.Y., assignee of F. M. Chapman, Fort Edward, N.Y.—Comprising co-operating press rollers, a suction box adjacent to a pass of the rollers and having screening openings formed in a reciprocating drainer plate constituting a sliding perforated cover for the suction box, and a clearer for moving the partially drain-



carrying roll journalled therein, a guide roll also journalled therein, a printing roll supported on said guide roll, and inking roll supported on said printing roll, and spring-operated means for



holding said inking roll in contact with said printing roll, whereby said printing roll, said inking roll, and said means are supported directly on said guide roll.

ed pulp into the pass of the rollers, the forward end of the drainer plate having perforations and extending so far into the pass of the rollers as to compress the already partially drained pulp between the said end and one of the rollers, thereby effecting a further draining of the pulp before it passes through the rollers.

### No. 128249. Roll Paper Cutter and Printer.

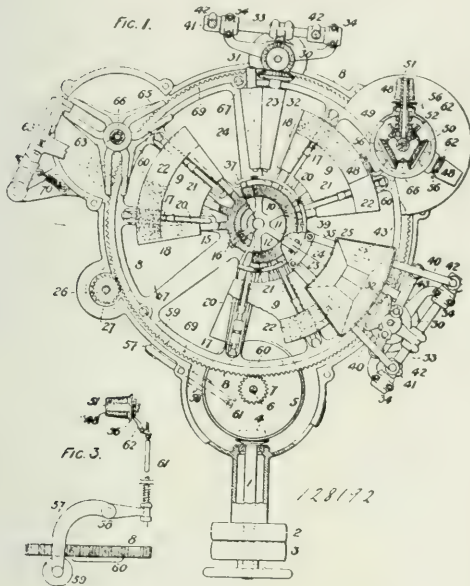
Royal Phelps Lowry, New York.—An automatic roll paper cutter and printer with a supporting frame, a paper

### No. 128192. Machine for the Manufacture of Conical Tubes of Paper, Etc.

Mono-Service Vessels, Ltd., assignee of E. Z. Taylor, both of London, Eng.—A machine comprising a revoluble platen adapted to hold shaped blanks, means for imparting rotary movement to such platen, means for applying paste to such blanks, means for rolling up such blanks comprising a plurality of continuously rotating conical rollers mounted in a single head, and means for intermittently rotating such head comprising a star wheel, a sleeve secured to the star wheel and on which



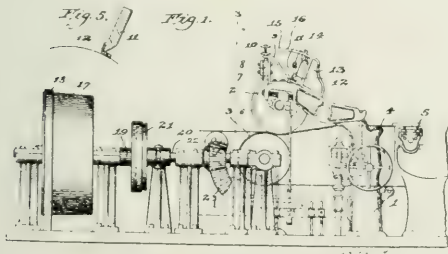
the head is mounted, and rollers carried by a rotating part of the machine and adapted to engage slots in such star wheel, and a stop mechanism by which



the star wheel and the rolling mechanism connected therewith will be brought to rest in their proper positions and locked in such positions until the star wheel is again about to be operated. Substantially as specified.

#### No. 127517. Paper Making Machinery.

Paul R. Thom, Appleton, and the Kimberley-Clark Company, Neenah, Wis., assignee of a half interest.—This inven-



tion relates to a paper machine of the Fourdrinier type and combines an upper couch roll provided with a smooth peri-

pheral surface, a bar adjacent said roll, a strip of textile absorbent material secured to the bar to the front thereof along its lower edge and trailing underneath and to the rear of said edge against the surface of the roll, and means for discharging water upon the roll in advance of said strip, said bar being adjusted to cause the strip to press lightly and yieldingly against said surface.



#### NEW INCORPORATIONS.

Pearson, Ltd., Vancouver. Capital \$1,000,000. To deal in pulpwood, etc.

Eastern Paper Co., St. Basile, Que.; capital, \$100,000. E. R. Pepin and J. O. Collette, St. Basile, Que.

Cranbrook, B.C. Saw Mill Co., Ltd. Capital \$50,000. To manufacture lumber and pulpwood, etc.

Nova Scotia Power & Pulp Co., Ltd., are applying to the provincial legislature for authorization to increase their capital stock to \$2,000,000.

British Canadian Paper Mills, Limited, Montreal, capital, \$500,000. To make pulp and paper, etc. Hon. T. Berthiaume, P. Lacoste, T. Bienvenu, Montreal.

Dominion Development Syndicate, Ltd., Vancouver. Capital £100,000. To do business as timber merchants and sawmill and pulpmill proprietors.

Commercial Printing & Publishing Co. Capital \$50,000. To take over the business of W. S. Parks, under the name of Commercial Printing Co., Vancouver.

Waverley Book Co., of Canada, Ltd., Toronto. Capital \$40,000. To do a bookseller's, publisher's, stationer's, and printer's business. P. Lancaster, J. C. Gulliford, and E. J. Boyd, Toronto.

Island Lumber Co., Ltd., Vancouver. Capital \$100,000. To own pulp mills, acquire the property of the Quamichan Mill Co., also the business of C. Stone & Co., Duncan, Vancouver Island.

Iowa Lumber & Timber Co., Ltd., Vancouver. Capital, \$250,000. To deal in lumber, pulp and paper, and acquire

the business of Buckley-Wilcox Lumber Co. in British Columbia and throughout the Dominion.

Quebec Pulp & Paper Co., Ltd., Montreal. Capital \$15,000,000. To carry on a lumber and pulpwood business, manufacture wood of all kinds, purchase and operate pulp and paper mills, etc. C. G. Greenshields, and E. R. Parkins, Montreal.

Koksilah Lumber Co., Ltd. To take over the business of W. J. Hagan, W. Dingwall and Jas. Cathcart, lumber manufacturers in Quamichan District, B.C., and make pulpwood, wood pulp, etc.

Standard Chemical Iron & Lumber Co., of Canada, Ltd., Toronto. Capital \$6,000,000. To manufacture pulpwood, mechanical and chemical wood pulp, paper, etc. John Wood and T. W. Lawson, Barristers, Toronto.

Bell's Galleries, Ltd., Montreal. Capital \$400,000. To manufacture logs, lumber, spool wood, pulpwood, paper, etc., and take over the business in Montreal and elsewhere of the New York Mantel & Decorating Co. L. Barry and C. L. Austin, of Montreal.

British & Colonial Land and Securities Company, Toronto. Capital \$1,000,000. To manufacture lumber, pulpwood, etc. Col. Sir H. M. Pellatt, Hon. J. M. Gibson, Col. J. Mason, H. S. Strathy, H. M. Macrae, S. D. Lauder, all of Toronto; Col. H. Mackie, Pembroke; and G. H. Smithers, of Montreal.



#### THE AMERICAN NEWSPAPER PUBLISHERS' ASSOCIATION AND THE AGREEMENT.

Mr. Norris, chairman of the American Newspaper Publishers' Association, issues a bulletin on the reciprocity agreement, of which the following are extracts:—

The Province of Quebec has no power to stop the exportation of wood from private lands in that province. Recent tariff legislation in the United States

aimed to coerce provinces of Canada to part with Crown land wood, and those provinces resented such coercion. In the reciprocity arrangement each province can do with its own land as it pleases, and can do this without affecting the immediate and free entry of paper and pulp made from wood cut on private lands in that province. The distinction between wood free from restriction of exportation and wood that is not free will show itself in various ways. Print paper made from wood cut on lands subject to restriction will be liable to a duty of \$5.75 per ton of paper. That duty will be prohibitory in competition with paper made from wood cut on private lands. The Provinces of Quebec and Ontario have been offering premiums and inducements for the transfer of American paper industries to Canada. Brown Bros., of Berlin Mills, N.H., recently installed a plant at La Tuque, Quebec, and propose to expand it materially. That plant depends on Crown lands for its timber supply. The International Paper Company has been flirting with the Quebec Government for similar concessions. The Reciprocity clause will give no encouragement to such diversion of industry from the United States to Canada. A barrier of \$5.75 per ton on print paper will confront such products until the Quebec Government removes the prohibition. The revenues which the province now obtains on wood cut from its Crown lands and shipped in manufactured form to the United States will be diverted from the Quebec treasury to the owners of private lands. The pressure from holders of Crown lands limits upon the provincial authorities for an opportunity to reach the greatest market in the world, that of the United States, will be irresistible and a diplomatic victory in the removal of restrictions will have been achieved without harshness, or coercion, or ill feeling of any sort. Each side will obtain an advantage, and that is the element of a good trade.

Care should be exercised to note that the last proviso of the paper and pulp

clause relates to products of the United States admitted into Canada. It does not affect the immediate free entry of paper and pulp from Canada to the United States when made from wood cut on private lands. It means that after all the provinces shall have removed all their restrictions upon Crown land woods and the United States shall no longer impose any duties upon any pulp or any paper from Canada, then Canada will reduce its duties upon the admission of United States paper and pulp into Canada.

The present output of paper in the United States is approximately 15,000 tons per day, divided as follows:—

	Tons per day.
News .....	4,315
Book .....	1,000
Paper boards ... ..	3,300
Wrapping paper .....	2,850
Writing paper .....	1,400
Roofing and sheathing.....	610
Tissue .....	200
Hanging .....	275
Blotting .....	60
	—————
	15,000

The various kinds of paper will be affected by the proposed legislation as follows:—

	Affected.	Not Affected.
News—tons per day..	4,315	....
Book—tons per day..	1,200	700
Paper boards — tons per day .....	3,300	....
Wrapping—tons per day .....	2,000	850..
Writing—tons per day	200	1,200
Roofing and sheathing —tons per day.....	610	....
Tissue—tons per day.	190	100
Hanging — tons per day .....	275	....
Blotting—tons per day	30	30
	—————	—————
	12,120	2,880

All the provinces of Canada produce less than 1,000 tons per day of all kinds of paper as compared with 15,000 tons per day produced in the United States. In other words, Canada's output, if all of it were shipped to the United States, would not equal seven per cent. of the United States consumption. The paper shipments from Canada to the United States have been almost negligible. For years they averaged less than 17 tons per day of all kinds of paper. In 1908, the American paper-makers arbitrarily advanced prices to a figure which permitted the profitable importation of Canadian paper, and the importation rose in 1910 to 180 tons per day of print paper, valued at \$2,120,000 per annum. But the paper shipments from the United States to Canada, covering high grades of paper, were valued at two and a half millions. Canada buys more paper from the United States than it sells to it. Canada has kept American mills going by annually shipping one million cords of pulp-wood valued at five million dollars and pulps valued at four million dollars, without which supplies our mills could not have continued the production of paper.

Under the new arrangement American paper-makers will gain a large market for their products in Canada, especially in the higher grades of paper.

The ultimate outcome of the proposed reciprocity arrangement, if ratified, will be a tendency toward the concentration of the pulp business in Canada and the conversion on this side of those pulps into paper, with great growth and advantages for each side.

JOHN NORRIS,

Chairman of Committee on Paper.



W. J. Gage & Co., wholesale paper dealers, Toronto, following the annual custom of dividing profits with their employees, distributed about \$6,500 as a bonus to employees who had been in the firm's service a year or more.



## CONSERVATION OF RESOURCES.

(Special to Pulp and Paper Magazine.)

Quebec, Jan. 17, 1911.

The centre of the forces making for the conservation of our natural resources are gathered in the ancient city of Quebec this week; as a result of which may be seen the faces of men noteworthy in almost all walks of life. For the power of the comparatively new doctrine of conservation consists, not only in the fact that this, that, or the other particular industry must be saved to the country, even against itself if necessary, but that to the more thoughtful among us a clear vision has come that the very future of the nation depends upon our thrift in managing what nature has bountifully placed within our control. The Forestry Convention, which will begin its sessions tomorrow, and a report of which appears in this present issue, only touches upon one important aspect of the all-important subject of conservation. Soil, public health, water powers and fisheries and mines, are other aspects, in all of which past wastefulness must turn the nation's footsteps towards future care. The purpose of a forestry convention is to discuss thoroughly the ways in which Canada's forest resources have been and are being wasted and in which this may be remedied; and the work of the Conservation Commission, the meeting of which antedates that of the Forestry Association by one day, is to endeavor, by means of legislation or otherwise, to have these recommendations carried out after they have been thoroughly sifted. But, as remarked above, the forests, while highly important, not only for their own sake but in their relation to other sources of public weal, such as the soil, water powers and so forth, are only one of the branches which the Conservation Commission has under its ken.

The chair was taken by Hon. Clifford Sifton, chairman of the Commission,

who for the past year or more has forsaken his direct connection with party politics, in order to devote his marvellous organizing capacity to the good of the country as a whole. A few among those present were:—Senator Edwards, Prof. Fernow, Hon. Jules Allard, Minister of Quebec Crown Lands; E. G. Joli de Lotbinière, A. Bergevin, Prof. Roberts, Dr. J. M. Harper, Hon. R. Turner, C. C. James, Dr. C. A. Hodg-  
etts, Surveyor-General Grimmer, of New Brunswick; Dr. Beland, M.P., F. D. Monk, M.P., Premier Sifton, of Alberta; Hon. Dr. Rutherford, of Regina, H. M. Tory, of Edmonton; Hon. J. H. Howden, Provincial Secretary, Winnipeg.

The chairman's address was in the nature of a review of the past year's work. He said:—I will refer you first to the action of the Commission in regard to matters of legislation, premising my remarks with the statement that, so far as possible, action taken has been authorized by the Executive of the Commission. One of the most important propositions which the Commission has had to deal with was the proposition to dam the St. Lawrence River. The stand taken was in opposition to the project on a variety of grounds set forth in a memorial presented to the International Waterways Commission. It is satisfactory to know that the result of the opposition manifested by other public bodies as well as our Commission, has been to prevent the project from being authorized, and from present appearances, it seems unlikely that the persons seeking the authority will be empowered by the United States Congress to carry out their plans without the consent of the Canadian Government.

Opposition was further given to a bill to incorporate the International Waterways Canal and Transportation Company. This bill had reference to a proposed canal from Lake Superior to

the headwaters of the Saskatchewan River, and was regarded as being objectionable on many grounds. The bill was finally defeated, together with a similar bill which originated in the Senate.

On the subject of waters and water powers generally, our hydro-electric engineer, L. G. Denis, has been diligently collecting information and his report is now being finally revised for publication. It will be found to contain as full a statement of information respecting the waterways of Canada as is at present available. So far as legislation is concerned, the resolutions passed by the Commission at its last annual meeting have been communicated by the Commission to the various provincial governments and to the federal government. In one way and another the question of limited franchise and control of rates is recognized by the laws and regulations of most of the provinces. Mr. Monk, chairman of the committee on waters and water powers, has submitted a bill to the Dominion Government for the purpose of further regulating the granting of water powers by the Dominion authorities. My own view is in favor of limiting the term of the franchise to the shortest period compatible with the possibility of raising capital for development, and I suggest in that connection the term of 20 years as the limit.

On October 12th and 13th, a conference of the Dominion and Provincial health officers was held. This conference recommended the passage of legislation respecting the pollution of waterways and for the establishment of a Central National Council of Health, also for the establishment of a National Laboratory for medical purposes.

At the annual meeting of the Commission and also at the sitting of the Forestry Committee on May 2nd, the setting aside of the eastern slope of the Rocky Mountains as a forest reserve, was recommended to the government. It is gratifying to know that this area was set apart by Order-in-Council and,

within the last few days, a bill has been introduced for the purpose of permanently setting apart this reserve, which covers a large area of about 14,600 square miles. This reservation, if properly protected under an adequate policy for that purpose, will be one of the most important steps that can be taken in Canada for the preservation of valuable and important forest lands.

The same committee, on May 2nd, recommended the passage of an Act whereby railway companies should be penalized for allowing fires to spread from their right of way. These recommendations have been placed before the government by the Honorable Senator Edwards, chairman of the Forestry Committee.

Respecting the general carrying on of the propaganda of conservation, I may say that of 12,500 copies of the first annual report, all have been distributed with the exception of a few hundred copies, and very many more could have been distributed if we had been in a position to supply all the demands received.

Mr. Sifton also touched upon the questions of public health, fisheries, minerals, etc. His view also on the possible and probable effect of reciprocity with the United States upon Canada's raw materials and natural resources, should be very seriously considered. He is alarmed as to the effect upon conservation which would be exercised by such a broad agreement with the neighboring Republic, as is contemplated by the Fielding-Taft proposals.

Dr. J. W. Robertson said:—The possessions of the people in their natural resources are being surveyed and considered by the Commission of Conservation, and the ability of people to make the most of these in development, to conserve, to utilize and to improve them, is being enquired into by the Commission on Industrial Training and Technical Education. In regard to waterways and water powers, forests, fisheries and, to some extent, mines and

minerals, something definite towards conservation could be done by means of regulations laid down by legislation. For the protection of the lands, the conservation of fertility and the prevention of the spread of noxious weeds, much less can be done by legislation. Most must be done by means of forming and directing intelligent opinion among the farmers themselves and by furnishing such information and guidance as will make them competent and willing to make the best use of their lands. While other resources may be in the hands of a few corporations or companies, the ownership and control of lands are in the hands of multitudes of individuals voting separately and according to their own ideas. The survey of the committee had brought out the fact that if farmers on the average throughout Canada would farm as well as the fifty best farmers whose farms have been surveyed, the result would be the doubling of the quantity of field crops from the land now occupied in Canada within a period of three years. Since the valuation of field crops in Canada ranges from 530 to 550 millions of dollars per annum, the importance of that possibility is seen.

Mr. Monk gave full explanation of the bill he has presented before the House of Commons respecting water powers, and suggested that the alienation of water powers should not be decided upon before they were referred to the Commission of Conservation, which was specially appointed to study such matters.

Senator Edwards remarked that a general bill could not be adopted to be applied to all parts of the Dominion. If the Commission did not recommend the proper legislation for the government to adopt, the development of Canada's water powers might to a certain extent be prevented. In his opinion the government should not have power to break a lease if a special industry had gone to considerable expense in developing a 10,000 horse-power. In developing water powers it was necessary that

the whole power should be developed, which was a most costly matter.

Hon. J. Allard remarked that although the bill now before the House of Commons would in no way affect provincial water powers, still Federal legislation might to a certain extent influence the province. Leases of over 500 and even 200 horse-power should be made by tender or auction, and he favored long leases, but the law should not be the same in all the provinces.

Mr. Mackay remarked that legislators should exercise particular care in granting franchises.

Premier Sifton, of Alberta, stated that as his province had considerable water powers, they were very much interested in that subject, although the water powers were under Dominion jurisdiction. In his opinion 20 years instead of 50 years should be the term of alienation.

Mr. Monk replied that the effect of his bill was that alienation should not exceed 50 years, and not that it should be 50 years.

On the suggestion of the chairman, a special committee was appointed to draft resolutions on the above subject, to be submitted to the House.

In the evening C. C. James, Deputy Minister of Agriculture for Ontario gave a highly interesting address on what Ontario is doing for the improvement of agriculture.

He was followed by Dr. Hodgetts with an illustrated address on "Unsanitary Housing," in which he showed that Toronto and other Canadian cities, even at this early day, are not free from the slum evil which is the scourge of older civilizations.



J. R. Clarkson, manager for the Edward Partington Pulp & Paper Co., St. John, N.B., has arrived home from England, where he has been in consultation with Mr. Edward Partington, the president. He states that a large paper mill will be erected in the near future.



## PULPWOOD CONSUMPTION, 1909.

We have been favored with an advance copy of "Forest Products of Canada, 1909—Pulpwood," compiled by H. R. MacMillan, B.S.A., M.F., being bulletin No. 12 of the Forestry Branch, R. H. Campbell, Superintendent.

The figures given for pulpwood consumption refer only to wood manufactured into pulp in Canadian mills. This wood is all of domestic origin. There is no pulpwood imported into Canada. The quantity of pulpwood exported from Canada during 1909 is shown in Table 6. The value given for pulp-

Because of its extensive spruce forests, abundant water powers and plentiful supply of labour, Quebec is responsible for over one-half of the total pulpwood consumption of Canada. Quebec mills used 53 per cent. of the pulpwood manufactured in Canada in 1908, and 51.4 per cent. of the total in 1909. The percentages used in the other provinces were for 1908 and 1909, respectively: Ontario, 32.4 and 30.1; New Brunswick, 11.2 and 14.2; Nova Scotia, 3.4 and 4.1. British Columbia manufactured pulp for the first time in 1909.

Table 1.—Quantity, total and average, Value of Pulpwood used, and Tons of Pulp Produced, by Provinces, 1908 and 1909.

Province.	1908.			1909.			
	Cords of Wood Used.	Value. \$	Average Value per Cord.	Tons of Pulp Produced <sup>1</sup>	Cords of Wood Used.	Value. \$	Average Value per Cord. Produced <sup>2</sup>
Canada	482,777	2,931,653	6.07	3 06,738	622,129	3,464,080	5.57
Quebec	255,943	1,466,521	5.73	201,450	319,935	1,866,700	5.83
Ontario	154,714	1,119,742	7.23	108,124	187,352	1,070,740	5.72
N. Brunswick	54,058	265,924	4.94	36,711	88,450	414,689	4.69
Nova Scotia	18,062	79,466	4.39	16,794	25,076	101,945	4.07
B. Columbia.	2	.....	....	.....	1,316	10,006	7.44

<sup>1</sup>Approximate.

<sup>2</sup>No pulp was manufactured in British Columbia prior to 1909.

wood is the value at the mill. There are about ten mills in Canada from which no reports were received for 1909.

The fifty mills reporting, used in 1909 622,129 cords of wood. This is an increase of 139,352 cords or 28.9 per cent. over the pulpwood consumption for 1908.

### Pulpwood Consumption by Provinces.

In Table 1 are shown the quantity, total value and average value per cord of pulpwood used and tons of pulp produced in each province for the years 1908 and 1909.

and used then only two-tenths of one per cent. of the total amount of pulpwood consumed in Canada. The mills in British Columbia have not yet been running on full time.

The average value of pulpwood per cord at the mill was less in 1909 than in 1908. The average for Canada was \$6.07 per cord in 1908 and \$5.57 in 1909. The decrease was common to all the provinces excepting Quebec where the price was \$5.73 in 1908 and \$5.84 in 1909. The greatest decrease was in Ontario; the average price fell \$1.51 per cord, from \$7.23 in 1908 to \$5.72 in 1909.

Pulpwood was cheapest in 1908 in Nova Scotia at \$4.07 per cord, and the highest in British Columbia at \$7.60 per cord. Over the area where 81.5 per cent. of the wood was consumed, Ontario and Quebec, the average price varied only 11 cents per cord, the wood being cheaper by that amount in Ontario than in Quebec.

#### Pulpwood Consumption By Species.

Two species, spruce and balsam, furnish 99 per cent. of the wood used for pulp in Canada.

The quantity and value of these and the other woods used during 1909 is given in Table 2.

tities used of the other three woods, poplar, hemlock and jackpine, are inconsiderable. Poplar is the most important of these; hemlock was used in the soda process in Quebec in 1909, but was not reported for 1908. Jackpine was used in the mechanical process in Quebec in 1908, but its use was not reported for 1909. A small quantity of wood of unspecified species was used in the experimental manufacture of soda pulp in British Columbia.

The average prices of the different woods used, as they indicate in some cases where the manufacturing companies own timber limits, the cost of logging and bringing to the mill, and not the purchase price, do not show the relative

Table 2.—The Quantity and Value of Pulpwood used, by Species, 1908 and 1909.

Kind of Wood.	1908.		Per cent. distribu- tion.	1909.		Per cent. distribu- tion.
	Quantity.	Value.		Quantity.	Value.	
	Cords.	\$		Cords.	\$	
Total	482,777	2,031,653	100	622,129	3,464,010	100
Spruce	420,631	2,541,576	87.2	516,030	2,793,318	82.9
Balsam	57,821	369,915	11.9	100,095	637,065	16.1
Poplar	1,575	9,162	.3	5,188	30,135	.9
Hemlock <sup>1</sup>	.....	.....	..	700	3,156	1
Jackpine <sup>2</sup>	2,750	11,000	..	116	406	(4)
Unspecified <sup>3</sup>	.....	.....				

(<sup>1</sup>) No hemlock was reported for 1908.

(<sup>2</sup>) No jackpine was reported for 1909.

(<sup>3</sup>) Wood used in British Columbia for experimental purposes.

(<sup>4</sup>) Less than one-tenth of one per cent.

Spruce is the mainstay of the pulp industry. Over 516,000 cords of spruce were manufactured into pulp in Canada during 1909. This was over four-fifths of the total pulpwood consumption, and represented an increase of 22.7 per cent. or 95,399 cords over the domestic spruce consumption for 1908. The increase in the use of balsam was much greater. About one-sixth of the pulpwood used in 1909 was balsam; this was 73.1 per cent. more than was used in 1908. The quan-

value of the different woods for pulp manufacture. It would seem, though, that balsam is quite as satisfactory for pulp manufacture as any other species, for both in 1908 and 1909 it represented a higher cost at the mill than any other species. The prices per cord were in 1909, balsam, \$6.26; poplar, \$5.81; spruce, \$5.41; hemlock, \$4.51. These prices are without exception lower than those ruling in 1908. The prices paid for the species used in 1908 were:

balsam, \$6.39; spruce, \$6.04; poplar, \$5.82; jackpine, \$4. The wood showing the greatest change was spruce, the price of which decreased 10 per cent., or 63 cents per cord.

A small quantity of slabs and sawmill waste were used for pulp in 1908, but no such material was reported for 1909. In other countries the use of such material is usual, and seems to give satisfactory results. This economy will probably become general in Canada when the price of pulpwood increases. Immense quantities of slabs, edging and sawdust are yearly wasted.

(To be Continued)



#### TRADE NOTES.

The Ticonderoga Machine Works, Ticonderoga, N.Y., are very busy building paper mill machinery and have recently made shipments of the Improved Warren Patent Double Drum Winders to Taggart Brothers Company, Watertown, N.Y., the St. Lawrence Paper Mills, Ltd., Milie Roches, Ontario, and others.

They are at present constructing large winders for the St. George Pulp & Paper Co., Norwalk, Conn., also two large winders for the Willamette Pulp & Paper Co., Oregon City, Oregon.

Up to the present time, the machine works have manufactured over twenty of these Improved Winders, all of which are giving gratifying results.

A recent patent, dated Dec. 20, 1910, covers many new valuable features of the Improved Warren Patent Double Drum Winder; the Ticonderoga Machine Works having the sole right to manufacture same.

\* \* \*

W. V. Bowater & Sons, wholesale and export paper merchants, London, Eng., favor us with a copy of a brochure, which they have recently issued as a reprint from a splendidly illustrated article in the Paper Maker and British

Paper Trade Journal. The status in English trade circles of the above from is so well known that it needs no comment in this place, and we will only say that the pamphlet under notice gives a full resumé of its growth, besides containing many interesting and illuminating points on the history of the British paper trade. The firm is also sending out to the trade some very useful calendars and almanacs.

\* \* \*

The East Canada Power & Pulp Co., of Murray Bay, Que., have placed an order with the Sherbrooke Machinery Co., Ltd., of Sherbrooke, Que., for their complete wet machine equipment. They have also adopted the Sherbrooke Machinery Company's pneumatic "save-all" system as well as their pneumatic filtering system.

\* \* \*

The Don Valley Paper Co., Toronto, send us a clearly printed calendar for 1911, showing interior and exterior views of the mill. They make sulphite and manila envelope papers, colored posters, colored Bristols, sulphite and manila tags, high-grade wrappings and specialties.



Since one of the main causes retarding the development of the many rich forests on the North Shore below Quebec, has been inaccessibility during winter months, it will be interesting to note the effect of building the Quebec & Saguenay Railway, for which the contract has recently been let to build the first section from Quebec to Murray Bay. The object is to build to St. Catherine Bay and Tadousac, at the mouth of the Saguenay, and make this point an open port during the winter. The event of this port being kept open to winter ocean traffic, and the fact that rail shipments will be possible, should be added inducements to build pulp and paper mills at the mouth of the Saguenay, from where some 2,000 square miles of timber lands may be tapped.



### THE PIPE OF PEACE.

S. Hunter, the cartoonist, often draws timely cartoons depicting the ground-

color of the undyed pulp by artificial light.

In dyeing blues (water-blues) it is advisable to add some of the alum to



Is it to be Filled, Lighted and Smoked like This?

currents of political movements, but few have been more a-propos than the accompanying one from the Toronto World.



### DYEING WALL PAPERS.

The dyeing of pulp intended for wall papers is a somewhat difficult operation, since the materials used are rarely white to start with, and generally include some more or less colored "broke," as well as the ordinary unbleached pulps. It is impossible, therefore, to keep to hard and fast prescriptions for colors, and every making must be dyed experimentally until the color matches the pattern. For this reason the makings should always be begun by daylight, since it would be impossible to make all the necessary allowances for the ground-

the beater before the dye in order to develop the true shade of the blue, which is not shown if the water be slightly alkaline. Other colors—some yellows, for instance—are affected injuriously by alum, and the shade changes materially when the paper comes on the hot drying cylinders. Care should be taken to see that the dyes are all properly dissolved before they are added to the pulp. This is best done in a copper vessel with hot water, the solution being then poured through a fine sieve. Some colors—for instance, magenta—dissolve only with the greatest difficulty even in boiling water, and require the greatest caution. Others, on the other hand, are so soluble that they may be added to the pulp in the dry condition; but there is always an element of uncertainty in this practice, since the colors may form clumps at the bottom and upset the calculations for subsequent charges. Undissolved

particles of dye may also cause unsightly streaks when the paper is damped for calendering or when it is pasted on the walls; they are also liable to spoil the felts on the machine.

The order in which the sizing materials and colors are added to the pulp does not often matter very much, but as a general rule the writer adds them in the following order: color, size, loading, alum. White loadings should never be added to deep-colored pulps, since they dilute the color and the advantage gained in weight does not compensate for the disadvantage of the greater quantity of dye required. Colored minerals can, of course, be used with advantage when permissible.

Most wall papers require several colors before the correct shade is obtained, sometimes as many as five or six, but the beater-man should use every endeavor to restrict the number of different dyes employed as far as possible.

The mill manager should exercise a strict control over the cost of the dyeings, since the same shade may be obtained in different ways, some of which are far more costly than others. For this reason the cost of dyes should be debited to each making, and should not, as in some mills, be allowed to form part of the standing charges.



#### WARM WATER IN THE PAPER MACHINE.

The use of warm water in the pulp chest is of unquestionable advantage both in the ordinary and in the cylinder machine. It assists felting, draining, and drying. The longer the wire the greater the benefit of using warm pulp will be, for it must not be forgotten that the solid matter of the pulp must settle on the wires in a felted state. The warmth helps not only the settling but the felting, so that it is possible to get a good quality of paper with a comparatively high speed and less shaking, such as could not be made from cold pulp except at a lower speed and with the expenditure of much force in the

shaking. This is well shown in the table below. It is true that the shaking has to be rather sharper, but that is much more than made up for by the greatly diminished frequency. Other things being equal, the shaking should be slower the thicker the paper. In all cases the great rule must be remembered that the more rapid the shaking the less tendency there is for the water to pass through the meshes of the wire. The reason of this fact is obviously the inertia of the rapid motion of the water to and fro at right angles to the force of gravity. The table alluded to is as follows:—

Temperature C. in the stuff chest.	Weight of paper obtained in grams per sq metre.	Approx. number of shakings per minute.
42 .....	330 .....	461
46 .....	380 .....	460
48 .....	460 .....	420
50 .....	510 .....	400
53 .....	560 .....	375
55 .....	610 .....	350
58 .....	660 .....	350
59 .....	720 .....	350
60 .....	765 .....	320
61 .....	810 .....	320
62 .....	860 .....	300
63 .....	900 .....	275
64 .....	950 .....	250

This table proves the foregoing remarks in a striking manner.

The use of hot water on the cylinder machine is not of such all-round advantage as it is on the Fourdrinier, but provided the water is not more than lukewarm, the chief difficulty, that of too rapid draining, is usually avoided. There is here, we see, some risk that the paper will not have time to close properly. If boards are being made the separate layers will be too dry to cohere properly in the press. The chief point with a cylinder machine, however, is to use greasy pulp, which is less easy to drain too dry, so that in board-making there is little fear of want of cohesion. It must not be forgotten that there is no shaking in a cylinder machine, and that all use of hot water with it must

be regulated from a knowledge of that fact. The use of warm water in paper making is now receiving much attention, and seems destined to satisfy at least a large part of the expectations formed of it.



## PROVINCE OF QUEBEC PULP AND PAPER NEWS.

(Special to Pulp and Paper Magazine.)

Quebec, Feb. 11, 1911.

Oswald A. Porritt, general manager of the Jonquiere Pulp Co., and the new Kenogami Paper Mills in course of construction, is at present in Europe.

\* \* \*  
Hon. J. Allard intimates that the Quebec Government will next summer offer, under a 99 years' lease, a number of waterpowers situated in various parts of the province.

\* \* \*

"Les Bucheros du Saguenay Limités," which owns a rossing plant on the Saguenay River, was recently bought over by Mr. Joseph Tremblay (Alexis). During the next summer this company will ship to the United States some 10,000 cords rossed pulpwood taken on private lands. Mr. Tremblay states that he will continue to ship from 5,000 to 10,000 cords annually.

\* \* \*

With the lull in interest of English investors in Quebec pulpwood limits there has been a corresponding increase in interest shown by American capitalists, who are eagerly investigating many excellent propositions. There appears to be a strong preference shown for Quebec limits over those of Ontario, not so much owing to better shipping facilities, but on account of what some believe to be unreasonable conditions imposed by the Ontario Government upon the purchaser of limits.

\* \* \*

The following figures have been given by pulpwood men. They are from new sources of pulpwood supply from private

lands which it is thought by some will more than compensate for the withdrawal from export of wood cut on crown lands:—

Seminary lands...	50,000	cords	annually.
Tobin and Bay-			
liss .....	50,000	"	"
Chicoutimi region.	15,000	"	"
North Shore, East			
of Saguenay...	100,000	"	"
Anticosti Island...	60,000	"	"
Matane Ry. and			
Settlers .....	40,000	"	"
Transcontinental			
Ry. region, East			
of Quebec City.	25,000	"	"
Total .....	340,000		
	* * *		

Recent private information from reliable sources in London, England, indicates that the multiplicity of "propositions" in Canadian pulpwood and timberlands is causing a halt in the negotiations which already had gained favorable headway with a number of sound business promotions. The English investor's great preference for first mortgage bonds at a low rate of interest places him beyond the reach of endeavors to interest him in stock propositions, however sound. A notable fact, also, is the evidence of fear on the part of prospective English investors that encroachment by settlers under colonization grants may hamper the future prosperity of large paper mills owning limits. That the government recognizes this danger is evident and measures are now being adopted to separate permanently forest areas from agricultural areas.



The E. B. Eddy Co., Hull, banquetted and entertained a special train load of buyers for the chief wholesale and jobbing houses in the West under the charge of J. B. Persse, the company's agent at Winnipeg. They came at the invitation of W. H. Rowley, the president, when that gentleman was recently in the West



## Pulp and Paper News.

---

Plans are understood to be making progress for the erection of a new paper mill at Sault Ste. Marie by the Lake Superior Corporation.

\* \* \*

Another mysterious fire seriously damaged the plant and building of the Pullan Paper Stock Co. in Winnipeg, the loss being about \$10,000.

\* \* \*

The St. Maurice Industrial Co., La Tuque, Que., are said to be making plans for large extensions to their pulp and news print mills.

\* \* \*

Canada Coating Mills, Ltd., Georgetown, held their annual meeting last month and reported a great increase of business compared with last year. The old board of directors was re-elected.

\* \* \*

John R. Barber, the veteran paper manufacturer of Georgetown, Ont., is now in Cuba for the sake of his health which, we are glad to know, is fair at the present time.

\* \* \*

We are very glad to state that R. S. Lea, of Lea & Ferguson, pulp and paper engineers, Montreal, who was operated on in the hospital for appendicitis, is now fully recovered.

\* \* \*

W. MacLean, lumberman, Thorold, Ont., will erect a new pulp mill at that place, which will make Thorold more than ever the pulp mill town of Ontario. He has a fine water-power adjacent.

\* \* \*

We understand from E. R. C. Clarkson, Toronto, who is winding up the affairs of the Sturgeon Falls Pulp and Paper Mills, that all the requests so far for options on that property have been declined, and that it will be sold by auction in April.

\* \* \*

The Macleod Pulp and Paper Mills at Milton, N.S., were the scene of a cele-

bration last month in honor of the arrangements which have been made for converting that place into a paper manufacturing town. Much enthusiasm was displayed by local business men.

\* \* \*

The House Committee on Claims at Washington has reported adversely on a bill to refund James Davy, of Thorold, Ont., \$200.96 alleged to have been excess duties collected on wood pulp imported from across the border from December 29th, 1902, to April 8th, 1903.

\* \* \*

W. J. Gage, of the wholesale paper and stationery firm of W. J. Gage & Co., Toronto, entertained the members of the council of the Toronto Board of Trade last month on retiring from the presidency. Mr. Gage was complimented on the work he accomplished while president of the board.

\* \* \*

The city of Ottawa has been hard put to it to find water for fire protective purposes, and at the instigation of the Fire Underwriters' Association it requested local manufacturers, already handicapped through the low water, to close down their establishments, which was acceded to for some days.

\* \* \*

The Brompton Pulp and Paper Company started up their new mill near Bromptonville on the 31st January, and Mr. Bothwell, the manager, thereby won a bet. Operations on this mill were only started on the 4th of May, and it is creditable to the energy and determination of Mr. Bothwell that the mill was put in operation within so short a time. The company believes it has now one of the most up-to-date ground wood mills in Canada.

\* \* \*

The Georgetown Coated Paper Mills, Limited, Georgetown, Ont., have now begun operations. The mills will have six coating machines when the full

equipment is installed and two stacks of supers. The four buildings are of reinforced concrete and entirely fireproof. All kinds of coated book, lithograph, label, cardboard and manilas are turned out. J. A. Willoughby is president of the company, and L. E. Fleck, vice-president and managing director.

\* \* \*

Stock of Laurentide Paper Co. showed very material advances last month on the Montreal Exchange in expectation, it is supposed by some, of an increase in dividend. These hopes were not realized, however, at the recent special meeting. It is believed that the dividend may still be increased or that the capital stock will be doubled to \$6,000,000. Another explanation of the sensational rise in Laurentide is advanced to the effect that a movement is on foot to merge it with certain other Quebec Province corporations as referred to in another paragraph.

\* \* \*

One of the biggest financial propositions under way in Montreal is the Quebec Pulp and Paper Company, Limited,

with a capital of \$15,000,000. The intention of the company is to purchase a number of running concerns and options are said to have been already secured, which will give the Quebec Pulp and Paper Company an enormous output within a few months. The company's intention is said to be, also, to build large pulp and paper mills on the north shore of the St. Lawrence, near Three Rivers, the chief product of which will be news print. It is possible that the names of the companies absorbed will not be changed, but that the Quebec Pulp and Paper Company will simply become a holding company. The money comes from both English and French capitalists in Montreal. We understand that R. Forget, M.P., and J. N. Green-shields, K.C., are heavily interested.

\* \* \*

The St. George, N.B., Paper and Pulp Company, at its annual meeting held at Hudson Falls, N.Y., elected officers as follows: President, Joseph Goodfellow; vice-president and general manager, E. G. Murphy; treasurer, E. M. Murphy, and secretary, W. H. Odell.

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#### **SULPHITE SUPERINTENDENT.—**

With several years' experience in the States making bleached and unbleached sulphite, wishes to change. Experienced with various acid systems. References At. Address, U. S. S., care of "Pulp and Paper Magazine."

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**THOROUGHLY** practical paper maker (Scotchman), is open to position, accustomed to high-class tub-sized air-dried writings, envelopes, account book and cartridge papers, banks, loans, and blottings; experienced in rags and wood pulp; was manager in Millholm, Cathcart, Glasgow, two years; with Hele Paper Company, Devonshire, 15 years; and with John Allen & Sons, Stowford Mills, Devonshire, 6 years. Would join responsible working party to form com-

pany in Canada. Archibald A. Dickson, 14 Elm Road, Mannamead, Plymouth, England.

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**Situation Wanted** by experienced boardman, one who has had twelve years' experience manufacturing pulp and box board; also pulp mill experience; mill, office or road. Address Box 18, care "Pulp and Paper Magazine."

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#### **OLD METAL WANTED.**

Screen Plates, Felts, Old Metals, etc., any kind, highest prices paid.

Advise what you have to the

**IMPERIAL WASTE & METAL CO.**

Queen St. - Montreal.

# The Pulp AND Paper Magazine of Canada

Vol. 9—No. 3,

TORONTO, MARCH, 1911

(Canada \$1 a Year  
(Single Copy 10c.

## Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

**Subscriptions:** Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage, \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required, four days earlier. Cuts should be sent by mail, not by express.

**BIGGAR-WILSON, Ltd.**

**PUBLISHERS.**

Offices, Confederation Life Building,  
Toronto, Canada.

### RECIPROCITY.

**The Treaty of 1854-66—How it was  
Negotiated and Why it was Annulled.**

(Continued).

This brings the record down to the time of reciprocity. The tariff conditions under which the reciprocity period was ushered in were these: that the duties imposed by the United States on all articles manufactured in Canada ranged from 20 per cent. to 40 per cent., while Canada imposed an average of 12½ per cent. on like goods from the United States. The Maritime Provinces' rates ranged from 5 per cent. to 10 per cent., the extreme being 12½

per cent. Horace Greeley, in a pamphlet published shortly after this, figured it out as follows: "On all such manufactures as he (the Canadian) could send to the United States he is shut out by a duty of 24 to 30 per cent., while the Canadians admit manufactures of the United States to a considerable extent free of duty, some at 5 per cent., and the great bulk of their manufactures at 15 per cent." Not only did this inequality of tariffs on manufactured goods exist, but no sooner had the British Corn Laws been repealed than the United States Government, in order to transfer the traffic of the West to United States seaports from the St. Lawrence route, granted a drawback of the duty on goods shipped from Canada to the States for re-export, and bonding privileges were also granted to imports into Canada via United States ports. It was in the same year (1846) that the tariff of the United States was increased on a number of articles which would adversely affect the trade of the provinces. These facts are to be remembered in connection with the complaints afterwards made as to the observance of the spirit of the treaty.

By the reciprocity treaty of 1854 the following classes of goods were put on the free list of both countries: Grain, flour and breadstuffs of all kinds; animals of all kinds. fresh, smoked or



salted meats; cotton, wool, seeds and vegetables; dried and undried fruits; fish of all kinds; products of fish and of all other creatures living in the waters; poultry and eggs; hides, furs, skins or tails, undressed; stone or marble in crude or unwrought state; slate; butter, cheese, tallow; lard, horns, manures; ores of metals of all kinds; coal, pitch, tar, turpentine and ashes; timber and lumber of all kinds; firewood; plants, shrubs and trees; pelts, wool; fish oil; rice, broom corn and bark; gypsum, ground or unground; grindstones; dyestuffs; flax, hemp and tow, unmanufactured; unmanufactured tobacco; rags.

These articles, and these only, were to be free from both countries. The navigation of the St. John River, the River St. Lawrence and the canals of Canada was conceded, and mutual fishing rights were agreed to; but nothing whatever was said or implied limiting the freedom of either country in its tariff on articles other than those named in the free list. The treaty was to endure for ten years from the time it should take effect, but this was not till March, 1855, although by legislation of the Canadian provinces the United States got the benefit of the treaty in those territories in 1854. The treaty was terminated in March, 1866, by formal notice from the United States.

#### THE UNSTABLE EQUILIBRIUM.

During the currency of this treaty the tariff of the United States and of the Maritime Provinces remained the same on manufactured goods, but in Upper and Lower Canada there were almost yearly alterations to the tariff, and these alterations were generally upward. As

these changes took place there were protests from United States manufacturers of goods affected that Canada was violating the spirit of the reciprocity treaty. It would, no doubt, seem so to most of those engaged in the United States industries adversely touched by these increases of duties. There was nothing in the treaty nor in the negotiations on which it was based preventing either country from changing its tariff on goods not specified in the agreement; but it is almost certain that if the manufacturing interests of the United States had known beforehand that duties would be raised on what they had to sell in Canada they would not have favored the treaty. There is no evidence of any conscious bad faith on the part of the Canadian Government, and, after all the changes that had been made during the life of the treaty, the tariff of Canada on those manufactures mainly affected was still lower by about 25 per cent. than that of the United States, so that if reciprocity was to imply equality of conditions the advantage was still on the side of the United States, especially when there was no industry in Canada, except lumbering, that was organized as well as in the Republic. But as evidence that Canada was willing to meet the United States even under these unequal conditions, a committee of the Canadian Legislature in 1858, reporting on the commerce of the country, recommended that "precisely the same principle as exists in the intercourse between the different States of the American Union may be established in these colonies," and also that "the principle of reciprocity with the United States may be extended to manufacturers, the registry of Canadian

and United States-built vessels and to the shipping and coasting trade in the same manner as to the productions of the soil" which applied to the existing treaty. This recommendation was conveyed to the United States Government by J. W. Taylor, who, with Hon. Israel T. Hatch, was appointed to enquire into the operation of the treaty. Mr. Taylor in his report presented to Congress in 1860 endorsed this proposal, extending the treaty to manufactures, and establishing "an American Zollverein, each country adopting the policy of unlimited free trade with the other."

This was the policy afterwards known as Commercial Union, and favored in influential quarters in the United States, but rejected in Canada, where it had been first proposed in all sincerity.

#### The First Reaction.

In the old Legislatures of Upper Canada commercial matters were in charge of a Cabinet Minister, known as the Inspector-General. The title of Finance Minister was first conferred on Alex. T. Galt (afterwards Sir A. T. Galt), and in dealing with the financial situation that confronted Canada in this period, Mr. Galt, in a statement published in England in 1860, explains in an incidental way the reasons that had compelled the Canadian Government—by which is meant the Government of the united provinces of Upper and Lower Canada—to increase the tariff. Mr. Galt mentioned that it was not till 1848 that the differential duties imposed by Great Britain on importations into Canada were repealed and the provinces permitted to import whence they pleased, this freedom being further promoted by the repeal of the navigation laws so far

as they related to Canada. These changes, however, left Canada with an exhausted exchequer, a crippled commerce and a depreciated credit, to which was added the racial friction between the English and French of the two provinces. But Canada accepted the conditions and ceased to apply to the Imperial Government for favors that could only be obtained to the detriment of other countries. He then shows the success Canada had already attained in working out her own internal problems—educational, municipal, social and moral. The financial situation was that, on the repeal of the Corn Laws, the provinces had a debt of \$20,000,000, incurred for public works and railway and canal constructions, while the direct debt due to these works had by 1853 amounted to £9,677,672. With this load to carry and a small revenue from these works—owing to the fact that the drawbacks allowed by the United States and the steamship subsidies allowed by the British Government tended to divert the profits of the shipping business away from Canadian ports—there came a partial failure of crops in 1857, and an almost total failure in 1858. To meet the situation the government had to choose between borrowing money to meet the deficiency of revenue or imposing fresh taxation. Since the provinces had been thrown on their own resources they were not disposed to ask favors; and at the same time, desiring to keep faith with individual British investors who had put faith in the Canadian Government, they chose the alternative method of increasing the tariff. Mr. Galt went on to say: "The writer has been reproached in this country as the author and promoter of a protective policy in Canada. To this

he makes no reply other than the commercial measures which have produced the results he is about to state have always had his support while a member of the provincial parliament, and coming into office as Finance Minister of the country in 1858, with an exhausted exchequer, in the face of a general failure in the harvest, and with a deficit of no less than £500,000 in the revenue for 1858, he rests the defence of his policy on the fact that the government has maintained the credit of the country unimpeached, and in less than eighteen months has so far succeeded in reducing the expenditure and increasing the revenue that the year will be found to be within the income." He declared that the policy of Canada had been brought as far as possible into harmony with that of the Mother Country, and their willingness to negotiate the reciprocity was cited as a proof. He stated that in the period from 1844-48 the duties imposed on importations averaged  $10\frac{1}{4}$  per cent., and the free goods were  $2\frac{1}{4}$  per cent. of the total importations. In the next period from 1849-54, the duties averaged  $13\frac{1}{4}$  per cent. and the free goods 7 per cent.; while in the reciprocity period, from 1855-58, the duties averaged  $10\frac{1}{4}$  per cent., while free goods increased to 29 per cent. It was true that a large and influential party existed who advocated a protectionist policy, but this policy had not been adopted by the government, though the necessities of revenue had compelled action in partial unison with their views. It would undoubtedly be a subject of gratification to the government if they find that the duties absolutely required to meet their engagements should incidentally benefit and encourage the pro-

duction in the country of many of those articles we now import. The government had no expectation that the moderate duties imposed would do more than establish works requiring comparatively unskilled labor in producing goods which could be equally well made in Canada. The obligations which had caused most of the country's indebtedness had been incurred in carrying out the former policy of the Imperial Government or in protecting those who had recently invested their means in our railways and municipal bonds. The government had changed the duties from specific to ad valorem in order that the burden might press more equally upon all classes. The former specific duties had resulted in diverting the trade in teas sugars, etc., from Canadian ports to the United States and destroyed the trade formerly done with the lower provinces and the West Indies. The average rate of duty under the present tariff of 1859 was only  $13\frac{1}{2}$  per cent., and the increase to the consumer would be balanced by the cheapened cost of transportation."

Such was the situation as explained by Mr. Galt, and what other method he could have adopted to make ends meet was never made clear.

#### Canada Justified.

Professors Laughlin and Willis, in "Reciprocity," the most comprehensive American work the writer has seen on the history of the reciprocity treaties of the United States, justifies the Canadian Government even more completely than the Canadian Finance Minister himself in regard to the tariff relationship of the two countries.

(Continued).



**QUEBEC AND RECIPROCITY.**

Replying to a question put by Mr. Henri Bourassa in the House on the 16th ult., as to the attitude of the Provincial Government regarding the reciprocity negotiations which have resulted in a tentative agreement between the Dominion and the United States and whether the government would make any change in its decision as to the exportation of pulpwood, Premier Gouin stated that Quebec was waiting to see what might happen at Washington and Ottawa before making any announcement, but one thing certain was that the interests of the province of Quebec would be considered first of all.

Mr. Bourassa raised the question rather unexpectedly, asking leave to call the attention of the House to the reciprocity negotiations in progress in which Quebec was interested as regards the paper and pulp industry.

Mr. Bourassa concluded by saying he did not ask the government to give a definite reply to-day, as he recognized the question required study, but he was of the opinion the Provincial Government should reach a decision before the conclusion of the debate at Ottawa, as on Ontario and Quebec would depend the attitude of the lumber interests regarding the treaty, as they did not know what their position was.

Premier Gouin began by replying that Quebec had not received an official intimation of the signing of the agreement.

The desire of the government was to make Quebec the centre of the pulp and paper industry of the world—and there was no reason why it should not be ac-

complished, seeing that Quebec had the pulpwood and the water power. If the government had to choose between the Dominion and the United States, the choice would be for the Dominion, and if the choice lay between Quebec and Ottawa, the interest of Quebec would receive first consideration.

**BOOK PAPERS UNDER RECIPROCITY.**

Should the proposed reciprocity agreement become law, the manufacturer of the cheaper grades of book and coated papers in Canada is likely to suffer in more ways than through the working of the 4 cent clause. This proposal, as explained before in these columns, is that all papers up to the value of 4 cents per pound will be admitted into Canada free of duty, which would mean that the poorer grades of the above goods within the 4 cent limitation would be enabled to enter in such large quantities that Canadian mills making those classes of paper would suffer severely and some would be bound to close. This we believe would happen under reciprocity, even were the position of the United States manufacturers to remain unaffected thereby. But this is not likely to be the case. The interests of the news print mills there may be so adversely affected by Canadian competition that a certain percentage of them, it is thought, may be converted into book and writing paper mills. This, of course, would not in itself necessarily affect the Canadian market, but there are coincident consider-

ations which make the prospect gloomy. If the United States market were in a condition to take care adequately of any large increase in the production of book and writing papers, the possibility of fresh mills coming into the field in that country would not matter, but according to recent authoritative reports, the market is not in such condition, and as a consequence, if Canada takes down the bars, we are likely to feel the effects immediately in an onslaught of goods of the kinds referred to. Already, we understand, there are a more than ordinary number of representatives of United States houses sizing up the situation in Canada for these lines of goods.

The book and writing mills of the United States will need all the fresh outlets for their trade they can reach out for, to judge from the remarks made by David L. Luke in the course of his able report on the Book Division at the recent New York convention of the American Paper and Pulp Association. The gist of his report was to the effect that through various causes, the output of book paper has been stimulated to such an extent in the United States that there is already overproduction. In 1909 the total production of book paper in American mills was roughly estimated at 717,300 tons, and this was probably an over-estimate, because the association had not at that time got its admirable statistical department into good working order; while in 1910, when this was the case, the actual production was 749,125 tons, or an increase of 35,559 tons. In the latter year the mills were run to an average of over 95 per cent. of their full capacity. Meantime new plants are being erected, and old ones enlarged to such an extent that new machines this year are expected

to add about 60,000 tons per year to the present output.

As regards coated paper, Mr. Luke finds that United States mills during 1910 were only run to about three-fourths of their capacity; yet that there was an overproduction amounting to about one-third of the total production. In spite of these facts, new coated paper plants either in course of construction or contemplated will account for an additional 35,000 or 40,000 tons to be marketed within the next year or two.

Of course there is a normal annual increase in demand to take into account, but the figures are sufficiently startling to cause the manufacturers to hesitate. Not only that, but the fierce competition and struggle for new outlets, to which this overproduction will give rise, are bound to affect the Canadian market. The chief points to be considered by ourselves are: an overproduction already existing in the United States; new mills constantly going up; an increased tendency in this direction owing to adverse legislation affecting news print mills; a threatened curtailment in home demand owing to United States postal changes as described in another column. When, on top of these conditions, we are told that our government proposes to let down the bars to all paper coming from the United States up to a value of 4 cents per pound, it appears very little different from committing commercial suicide in the lines above referred to.



The Trent River Paper Co., Ltd., has been authorized to increase its capital stock from \$150,000 to \$500,000.

**OUR NEIGHBORS' VIEWS.**

While the pulp and paper clauses in the proposed reciprocity agreement with the United States hit Canada hard in several respects, it is interesting to find out what our brothers in the industry across the line really think of the same bargain. The correspondent of the "Pulp and Paper Magazine," visiting New York last month during the convention of the American Paper and Pulp Association, had an opportunity of talking with many of the prominent members of the industry. Some of them thought that the terms of the agreement appeared so absurd, either from the American standpoint or from both that of the American and Canadian, that they were loath to believe responsible statesmen were actually proposing such an absurdity. Others frankly confessed that they did not clearly understand what was proposed and, therefore, could not discuss it intelligently, the vagueness being more particularly marked in regard to the question whether the United States might be compelled to admit paper free before Canada complies with her part of the agreement. The meaning, however, if not the letter, of the agreement, was that Canadian pulp and paper would not be admitted into the United States free until the provinces shall have rescinded the restrictions on the export of logs. The confusion arose, of course, owing to the distinction in this country between Crown lands and private lands. In spite of this, many manufacturers in the United States fear that, if the question comes into court, the ruling will be that paper made from pulp-wood coming from private lands or from provinces having no restrictions will be able to enter free of duty, even should the other

provinces not remove such restrictions.

An idea quite generally held by the United States manufacturers with whom our correspondent came into contact was that reciprocity would kill the American paper industry, the news print end of it, very rapidly. They point out that, though skilled labor is paid about as highly in Canada as in the United States, unskilled labor is not; besides which the cost of raw material here is very much lower, the difference in a cord of pulp-wood in favor of Canada averaging \$4 or more, equal to \$5 or \$6 on a ton of paper. Also, the cost of felts, wires and other mill supplies is much higher in the United States, owing to the higher duties.

While it is usually admitted by American manufacturers that the United States is dependent upon Canada for a continued supply of pulp-wood, there are a few who point out that this dependence is greatly exaggerated, and that, while the home supplies are naturally more expensive, yet that they will be sufficient for some years to come. At any rate, the opening of the United States markets to what they call ruinous Canadian competition for the sake of getting restrictions on pulp-wood removed is looked upon as being the most foolish blunder their government could make. Incidentally, they look upon Canada's efforts to conserve her own supplies as being dictated from purely selfish considerations, for, as they put it, Canada has enough for the industry in both countries. They do not seem inclined to grasp the fact that we have right at our doors an example of how similar resources have been anything but "conserved."

In the demeanour of the whole trade one can readily trace various degrees of

resentment at the manner in which their government at Washington has seen fit to sacrifice the particular industry of pulp and paper-making to the reciprocity idea. And this is scarcely to be wondered at (from their point of view), seeing that it has been the butt of shot after shot. It must be remembered that it is only a few months since the Mann investigation; next came the Payne-Aldrich reduction in the duty on news paper from \$6 to \$4.75 per ton. Then comes the Tariff Board's enquiry, and, even before the conclusion of the labors of that body, like a bolt from the blue, and instigated by the selfish desires of the newspapers, comes the Fielding-Taft pact. We are sorry for our American confrères, but they are not alone.



#### UNITED STATES POSTAGE ON MAGAZINES.

The paper manufacturers of the United States are certainly receiving some hard knocks at the hands of their government these days. Not only are they confronted with the persistent and almost venomous attacks of the newspapers, which seem to have succeeded in inducing the Washington authorities to legislate the American paper industries out of existence, but they are face to face with a condition which threatens to greatly reduce the demand for their product. We refer to the proposition of the Postmaster-General, looked on favorably by President Taft, to increase postage rates on magazines. The suggestion is to impose a charge of 4 cents per pound upon the advertising sections of magazines and miscellaneous periodicals having a circulation of 4,000 lbs. or more per

issue, by which it is hoped the receipts of the Postoffice Department will be increased by \$6,000,000 annually. Why ordinary newspapers should not bear their share of the added burden is not made clear, unless because it was chiefly the magazines which have made it their business to expose the true crooked inwardness of much recent legislation and high-falutin finance. How much of the annual deficit in the United States Postoffice is due to cheap carriage of magazines and how much to bad methods of a general business character is an interesting question. There can be no doubt that the advertising found in that form of periodical results in a tremendous increase in profitable first-class mail business, as a direct consequence of the advertising, and that this must largely recoup for any direct loss on transportation of the papers themselves. Any material increase in postage rates will mean an increase in cost of subscription, and this in turn means a reduction of circulation and consequent dwindling of advertising.

Be these facts as they may, the problem is a serious one for the book and coated paper manufacturer, for the demand for his product is bound to fall off, should the proposed increase in postage be carried into effect. Seeing that the production in these lines in the United States is near its profitable limit to say the least, the manufacturer is certainly in an awkward position.



G. Campbell, of the Campbell Pulp and Lumber Company, of Weymouth, N.S., is endeavoring to raise \$150,000 capital with which to rebuild the mill recently burned down and to double its capacity. The company's assets include a title to 35,000 acres of timber limits.



### CLIFFORD SIFTON AND RECIPROCITY.

It was not surprising that Hon. Clifford Sifton should break away from the Liberal party, owing to its present stand with regard to reciprocity with the United States. As chairman of the Conservation Commission, and as leader of the intelligent forces in the Dominion making for the recognition of the fact that we shall owe our national prosperity, perhaps our national entity, to a wise preservation of our immense natural resources, what otherwise could one expect than that Mr. Sifton should throw overboard the pretensions of a party which is apparently willing to thrust those resources holus bolus into the hands of our great commercial rival?

Mr. Sifton's argument against the carrying into effect of Mr. Fielding's proposed reciprocal arrangement with the United States was a marvellously logical and closely-knit piece of work. The part dealing with the pulp and paper clauses of the agreement goes exactly to the point and depicts so concisely the abyss, to the edge of which the Canadian representatives have been led, that it passes comprehension how responsible ministers could have made such an extraordinary blunder. Mr. Sifton's words were:—

"The restrictive regulations adopted by Ontario and Quebec in regard to the export of pulp-wood have been universally approved. The Americans are anxious to get cheaper paper made from Canadian pulp-wood. It has been perfectly clear to everyone in connection with this question that all the Dominion had to do was to sit down and wait, and leave the subject severely alone, but what actually has been done is to put a

bonus upon the abrogation of the Ontario and Quebec regulations—the worst possible thing that could have been done."

And Sir Wilfrid Laurier's apology is that Canadian manufacturers will be unaffected by the agreement. Could anything be more fatuous?



### WHICH WAY?

The province of a trade journal is to treat of the economic bearing of a government's policy and to touch the political problems only to the extent that they influence the economic situation. In all that this magazine has said on the reciprocity question it has endeavored to analyze the industrial situation without regarding its bearing on the fortunes of either political party.

Inasmuch as all humanity is prone to err, and as even the wisest will slip a cog at times, one can sympathize with adherents of the Liberal party, which has become disjointed on the reciprocity question.

It should be clear to the ordinary man who has gone into the industrial bearings of this proposition that if the government's purpose was to give free trade, it does not do it, but that, on the contrary, since we are tied up to a country whose average duties, after making allowance for the free lists, is still much higher than those of Canada, it is a distinct step away from free trade. If, on the other hand, the intention was that the consumer in Canada should pay less for his food and other necessities, it is a logical impossibility for the farmers of Canada to get a higher price for their grain and live

stock and at the same time give the Canadian consumer cheaper food. No deep mathematical knowledge is necessary to demonstrate that.

We think we have shown in previous issues clearly enough that while the proposed treaty will give advantages to some sections and to some classes, it must necessarily do so at the sacrifice of other classes on both sides of the line.

In view of the facts and figures in the possession of those concerned in the pulp and paper trades and in the milling and other industries of Canada it is an extraordinary statement for the Prime Minister to make as he did in his defence of the reciprocity on the 7th inst. that the agreement if carried out, will not affect the trade relations of Great Britain and Canada. It is still more amazing to hear

... effect that the agreement will not affect Canadian manufactures. "We are exporters," says he, "not of manufactured products, but of natural products." In reply to this it is only necessary to recall the figures published in this magazine showing that our exports of manufactured pulp and paper have already exceeded those of the United States, which means that these exports are already more than ten times those of the United States per head of population. The actual figures are: Exports of paper and pulp manufactures from the United States in 1905, \$8,711,000; in 1909, \$8,108,000; exports of Canadian manufactures of paper and pulp in 1900, \$2,015,138; in 1910, \$8,611,256. The revised United States figures for 1910 are not given because they are not yet available. Then again, in the schedule of the proposed agree-

ment preserved or cured fish, canned lobsters and clams, fish oil, manufactured lumber of various kinds, ground mica, felspar, and talc, sulphate of soda, soda ash, extract of hemlock bark, certain brass and iron wire, rods and bars, rolled iron and sheet steel, fencing wire, and some other items are included in the free list, some of them directly to the disadvantage of British manufacturers, while under schedules B, C and D there are over sixty classes of articles, the duties on which are altered to the distinct advantage of the United States, in some instances as against British manufactures. To say, then, as the Premier did, that "We have given to the Americans only a free entrance to our market for their natural products" is one of those statements which, to say the least, have better been left unsaid.

The Premier then disposes of the fact of opening the Canadian market to the fourteen nations on the favored treaty list by stating that our present total imports from those countries is comparatively insignificant. Does the Prime Minister imagine that because imports from these countries are at present small when duties are levied against them that they will remain small when placed on the free list? What happened in the case of Germany? Since the removal of the surtax our imports of German manufactured goods have doubled in the aggregate. If this result has followed the reduction of duties by 10 per cent., will there be no effect on these fourteen countries when the present duties are removed altogether? We venture to say that in a year when there will be a shortage of the Canadian grain crop and Canadian hay crop the imports from

River Paper Company to the amount of \$8,100, which he is advancing to pay the overdue wages of the men of the Miramichi. George Keyes, of the Nashua, New Hampshire, alone will amount to millions of dollars all of which will certainly inure to the loss of the Canadian farmer, who would otherwise have the home market. We have already shown how the admission of Scandinavian pulp and paper will introduce a new and embarrassing problem for both the Canadian paper mills and those of the United States.

It may be that neither the Dominion Government nor the Liberal party would deign to accept the advice of the "Pulp and Paper Magazine," but if they sought such advice it would be, "Confess your mistake and all will be forgiven. Do not allow your obstinacy to throw the country into chaos."



#### TRADE AND MANUFACTURERS' NOTES.

A. & T. Meluk, Cartagena, Colombia, South America, are desirous of getting in touch with Canadian exporters of wrapping paper.

\* \* \*

Domingo de La Espriella, Cartagena, Colombia, South America, wish to have correspondence with exporters of stationery, printing paper and wrapping paper.

\* \* \*

It is announced that the new Kenogami paper mill of Price Bros. & Co., on Riviere au Sable, Que., is to be completed by June, 1912. Over 1,000 hands will be employed.

\* \* \*

A welcome visitor at the offices of "Pulp and Paper Magazine" in Toronto a few days ago was Mr. Bush, representing E. D. Jones & Sons Co., Pittsfield, Mass.

The "Pulp and Paper Magazine" had the pleasure of a call last month from John C. Corcoran, representing Rice, Barton & Fales Machine and Iron Co., Worcester, Mass.

\* \* \*

The General Supply Co. of Canada, Limited, Ottawa, are distributing to the trade a pamphlet describing "High Grade Packings." This firm is constantly adding to its list of packings just as soon as occasion shows they are needed so that their stock has become wonderfully complete. The materials used in their manufacture are of the highest grade. This little book describes and illustrates a large number of them, and should be in the hands of all interested in steam plants and in improvements to the same.

\* \* \*

"Dodge Friction Clutch Mechanism" is well known in all branches of the machinery trades. And it is the title of a handsomely printed and illustrated little brochure recently published by the Dodge Manufacturing Co. Toronto. The friction clutch, giving flexibility and convenience in power transmission, has become a very important device applied to power transmission equipment. One great advantage of the use of friction clutch pulleys and cut-off couplings is that the shafting in a mill can be divided into units, so that only the machinery actually in use need be run, and one or more departments or machines can be shut down without interference with other parts of the transmission equipment.

\* \* \*

An order has been granted allowing the liquidators to grant an option on the property of the Miramichi Pulp and Paper Company for three months at \$345,000. According to the terms of the option \$15,000 is to be deposited within thirty days and if the option is not executed within three months this amount to be forfeited. Another order was passed authorizing the liquidators to

michi Pulp and Paper Company. W. B. Snowball, of Chatham, one of the liquidators, is leaving for England in a few days to interest English capitalists in the industry. Several groups of Canadian capitalists are also said to be interested.



### NEW INCORPORATIONS.

Art Printers, Ltd., Toronto; capital, \$40,000. To do business as manufacturing stationers, designers, booksellers, etc. Jos. Barrett, S. G. Waller and A. V. Wagner, Toronto.

\* \* \*  
The Durable Box Co., Toronto; capital, \$40,000. To make and deal in paper and other boxes, card board, and fibre goods, etc. O. H. King, T. W. Webb, R. J. Dickinson, Toronto.

\* \* \*

Empire Paper Products Co., Ltd., Sombra, Ont.; capital, \$40,000. To manufacture and deal in paper, paper boxes, books, bags, envelopes, calendars, labels, etc. W. E. Stover, W. W. Stover, Dr. J. F. Campbell, Sombra, Ont.

\* \* \*

St. George Pulp & Paper Co., Hudson Falls, N. Y., has been authorized to carry on business in New Brunswick. Capital, \$460,000. To acquire, build and operate pulp and paper mills. Jos. Goodfellow, Fort Edward, N.Y.; W. H. Odell, Norwalk, Conn.; A. C. Getten, Hudson Falls, N.Y.

\* \* \*

Richards Manufacturing Co., Campbellton, N.B. To carry on a general lumber business and manufacture all kinds of products formed of wood, including pulp and paper. David, and D. E., and J. W. Richards, and J. S. Evans, all of Campbellton, N.B. Capital, \$300,000.

\* \* \*

Lake Superior Paper Co., Ltd., Sault Ste. Marie, Ont. To build and operate pulp and paper mills. Capital, \$8,000.-

000. Charter members are Thos. Gibson, Alex. Taylor, E. P. Seon and N. D. Bayly, all of Toronto. A 20-acre site with some buildings has already been secured. A bond issue has been underwritten by the same interests in England, who financed the Lake Superior Corporation. A plant with capacity to develop 40,000 horsepower may be erected.



The Montrose Paper Mills, Thorold, Ont., have now installed their new 140-inch book and writing machine, with a capacity of 30 tons daily. The company's business is good and increasing.

\* \* \*

Chicoutime Pulp Co. have engaged a firm of foresters, Appleton & Sewall, Bangor, Me., to map out and estimate a tract of 400 square miles of timber limits near the head of the Saguenay River.

\* \* \*

We understand that plans are being made for the sale by public auction of the Imperial Paper Mills, Sturgeon Falls, Ont., though whether this will take place as early as next month as was previously announced by Mr. E. R. C. Clarkson, the liquidator, is a little doubtful, owing to the unsettled feeling created by the pending Reciprocity negotiations.

\* \* \*

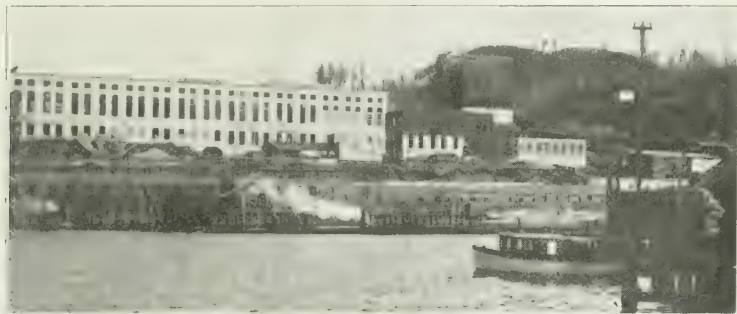
It is understood that J. N. Green-shields and H. A. Lovett, of Montreal, have left for Europe for the purpose of financing the recently incorporated Canadian Pulp & Paper Company, which is the name of the proposed \$15,000,000 holding company merging several of the Quebec Province pulp and paper concerns. The promoters are said to intend listing the entire common stock on the Paris and Brussels, besides the Montreal and perhaps London stock exchanges.



## POWELL RIVER PAPER COMPANY

Canada's paper production figures will show a considerable increase when the big plant of the Powell River Paper Co., at Powell River, British Columbia, commences operations next July. This mill, which will be one of the largest

followed, and within the course of a year or so it is the intention to double and possibly triple the initial capacity of 100 tons of paper a day. The machinery throughout is of the finest and most up-to-date that money and brains



**General View of Mill of Powell River Paper Co.**

on the continent, is being built by the Brooks-Scanlon lumber interests of Minneapolis, and will be their first entry into the field of the manufacture of pulp and paper. That they mean business and that they intend to succeed in this branch of industry and in comparatively new territory, is evidenced by the extent

can produce, and no expense is being spared to obtain the very highest efficiency. The same is true as regards the buildings. In fact, the owners are putting up something that will not only be complete at the start but that will be permanent. Nearly all the buildings are of reinforced concrete and the bal-



**Another View of the Mill.**

of the preparations being made at the present time and that have been going on for over a year.

Over \$2,000,000 will be expended on the plant, based on the plans now being

ance of brick. Approximately 65,000 barrels of cement and 1,000,000 brick are being used for the purpose, as well as enormous quantities of other material necessary for such construction.

The two paper machines alone are huge affairs, weighing nearly 1,000 tons. These are but a part of the immense equipment required for the complete operation. The Waterous Engine Works

the paper and for the chemical process, so fourteen large boilers are being installed. Besides generating electricity, the turbines will drive the big stones for grinding the wood into pulp, and



**Shipping Point of the Powell River Mill.**

of Brantford are supplying the greater part of the pulping machinery. One not familiar with the business can have no idea of the immense amount of machinery and apparatus necessary to develop the power, saw and grind the wood from logs to pulp, reduce the small pieces of wood to the finest fibre

altogether they will develop about 18,000 horse power.

For the purpose of getting this amount of power, and also to provide for the increased amount which will be needed later on, the Powell River is being harnessed by a large concrete dam at the crest of the falls about a



**Twenty Cars of Waterous Machinery.**

by steam acids, and do the countless other things necessary to turn a tree in the forest into finished news print paper.

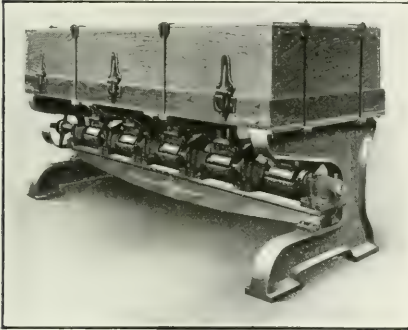
Electricity, generated by water turbines, will drive all the machinery, and no steam power whatever will be used for the purpose. Nevertheless, a great deal of steam will be required to dry

half mile from the sea shore. The water thus stored will be conveyed in huge penstocks, or pipes, some of them fourteen feet in diameter, to the turbines, a drop of about 160 feet.

In generating steam, oil will be used for the most part, and several hundred thousand barrels have been purchased.

Slabs and edgings will be used to a certain extent, but no coal.

This enterprise is proving, and will continue to prove, beneficial to the province of British Columbia in many ways. Fully one thousand men are being employed at the present time and have been for some months and steady employment is assured for a large number for years to come. Enormous quantities of material and supplies are being pur-



By courtesy of Waterous Engine Works

chased in Vancouver and the vicinity, and in Eastern Canadian markets. In fact, the company has made it a point to secure as much as possible of the required equipment from Canadian dealers. A new town has sprung up which promises to become an important place in the near future as it is well situated and will possess a feature which is always important where there is an abundance of raw materials nearby—cheap power and plenty of it.

The town site has been plotted by experts and a number of lots, even at this early stage, have been sold. The company have just completed twenty-five modern dwellings, all different, and intend to put up more later on. An unusually good school-house has already been put up, and a hotel of no mean pretensions and up-to-date in every respect, is nearing completion. Water pipes for fire protection and town supply have been laid and connected up with all the houses, and more have been ordered for additional

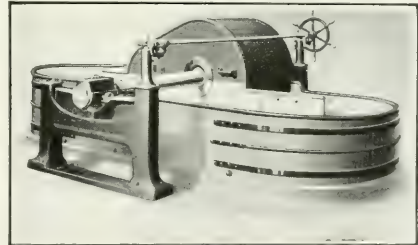
service. Mail and telegraphic communication have been established and a Customs officer installed. From one to three passenger boats ply each day between Powell River and Vancouver, about 100 miles distant.

The government long ago realized the importance of this big undertaking and has done a great deal to assist the company.

Accompanying this article are cuts showing the mill and other works in various stages of erection and from different aspects.

In the small cut attached a twenty-car train of Pulp Mill machinery is shown leaving the Waterous Engine Works Company's shops in Brantford, for its long trip around the Horn to Powell River, B. C.

This special train, the largest shipment of machinery ever sent from Brantford, represents less than one-third the full order of 63 carloads that was supplied by the Waterous Company. Practically the entire Pulp Mill equipment was built by this firm, and is a fine ex-



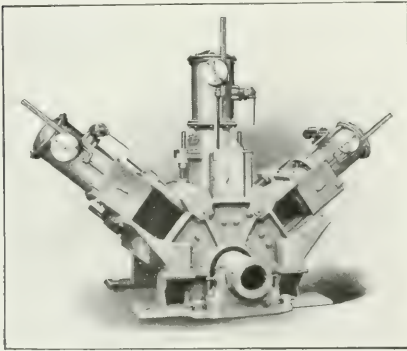
By courtesy of Waterous Engine Works.

ample of the high class and thoroughly up-to-date pulp machinery being manufactured in Canada to-day.

The Wood Room installation consists of a heavy Waterous Log Haul-up, 250 ft. long, corrugated live rolls, transfer tables, Five-arm Log Flipper of special design, and a 60 inch Cutting-up saw, which cuts the wood into 32 inch lengths. By chain conveyor logs are carried to the Barkers. These are ten in number, arranged in a staggered row

the length of the Wood Room, and fed by individual chain conveyors from the rough wood trough. They are the Waterous Standard Under-Floor type, carrying a 7 foot disc, and supplied with eight 18 inch barking knives. Fitted with Witham Automatic Barker Attachments, they have a capacity much greater than is necessary for the present size of the mill.

In the Ground Wood Mill, 12 Waterous Grinders, International type, are in operation. This type of machine represents the latest development in Grinder construction. Labor, power, and pulp saving devices have been greatly improved, and these machines have a grinding capacity much greater than any other make of the same size. They



Pulp Machine by Waterous Engine Works

carry a 54 inch stone 35 inches wide, and will take care of a 32 inch billet up to 15 inches in diameter. They are set in four groups, each group water-wheel driven and together having a grinding capacity of 120 tons per 24 hours.

For screening the pulp in the Chemical and Ground Wood Mills, and for the machines, fifty-two 12 plate Waterous Open-side Screens are employed. These are arranged in parallel-series, eight in a set, arranged back to back, and set on an incline, the last pair on each line being provided with efficient scraping attachment by which all slivers, chips, etc., are cleaned from the plates. In an

installation such as this the merits of the open side construction are shown to the best advantage. Should any overhauling of the shaft, or the removal of a cam be necessary, the individual screen shaft can be uncoupled and dropped out on the floor without disturbing the rest of the battery. Great improvements have been made in the design of the flow boxes, and with these Screens it is possible to regulate the screening speed as desired.

Seven Waterous Feltless Wet Machines, 84 inches wide, carrying cylinder moulds 40 inches in diameter, take care of the screened stock and dry it sufficiently to permit its being pumped where required. In the Beating Room six Waterous new model Beating Engines are installed. These are 2,000 pound machines and are the latest addition to the Waterous Company's line of pulp and paper machinery. They are of large capacity, provided with means for quick filling and discharging, and are built to allow perfect control of the beating operation.

Fourteen 72 inch x 18 foot Boilers supply the steam for drying, cooking, etc.

The three small cuts give a general idea of the design and construction of some of these machines, and may prove of interest to our readers.



A meeting of the directors of the Canada Coating Mills, Georgetown, and Wm. Barber & Bros., proprietors of the Georgetown Paper Mills, took place last month with the object of discussing a merger of the two mills. So far as arranged at present, we understand the two industries will be carried on under their individual names, but under one manager, who will likely be Mr. A. M. Huestis, who at present is managing director of the Canada Coating Mills. These mills have been using the product of the other for some time past.



## UNITED STATES PULP AND PAPER MANUFACTURERS IN CONVENTION.

New York City, Feb. 16, 1911.

The Waldorf-Astoria has been the centre for the last two days of a notable gathering of pulp and paper manufacturers, the occasion being the thirty-fourth annual meeting of the American Paper and Pulp Association. The attendance was very large, and both for this and because of the important subjects in the minds of those present, this year's convention will long dwell in the memories of all.

The first morning's business was confined to reports of the various branches of the trade.

That of the Book Division was presented by David L. Luke, in which that gentleman presented some statistics concerning the existing situation in the United States which are particularly worthy of attention. The figures he gave (which are referred to also in our editorial pages) make it appear that over-production has already come to the mills. Mr. Luke also referred to the reciprocity negotiations between Canada and the United States, and stated how, by the proposed arrangement, every kind of pulp and paper made would be seriously affected. Other subjects taken up were "Postal Rates," "Charging for Depreciation," etc.

A. W. Esleeck presented the report of the Writing Division. This showed that sales had practically kept pace with the output, showing a healthy growth in this branch. Foreign papers, however, had been often sold at prices eliminating competition. Reference was made to the fact that for the first time in the history of the paper industry its various branches have established trade customs equitable to both buyer and seller.

F. J. Sensenbrenner, in presenting the report of the News Division, said:—

During the past year the production of news was materially below the productive capacity of the mills of the country—during the first half of the

year on account of the strike of the employees of the International Paper Company, and the last half of the year on account of the severe drought which extended over all of the paper-making districts of the country. As a result of these conditions production and shipments were pretty evenly balanced, whereas if all the mills had been able to operate at full capacity there would undoubtedly have been a material surplus. The reduction in the duty by the tariff bill of 1909 has resulted in a material increase in the importation of news to this country. In view of this experience, if the bill now before Congress should become a law it is fair to suppose that it would mean the gradual transfer of the industry to Canada.

G. W. Sisson, Jr., representing the Wrapping Division, said that during 1910 the mills reporting to the Association Bureau had actually produced 443,467 tons of wrapping paper, or 84 per cent. of their full normal production. There was no accumulation of stocks, either at the mills or with jobbers. Prices, however, are admittedly too low. The proposed treaty with Canada he thought likely to affect prices unfavorably.

W. O. Ball in his report of the Tissue Division regretted that predictions made as to the outlook for business in 1910 had not been fully verified, especially during the latter half of the year. The outlook for prices is not highly encouraging, owing to the addition of several new machines.

Frank L. Moore, for the Bag Paper Division, referred to the demoralizing results which had occurred through the operations of "poachers," or mills which ordinarily make other grades than bag papers, and which frequently cut prices. Some mills, too, had put on the market intermediate grades in substitution of the regular grades, and this had further demoralized the market.

Geo. M. McKee, reporting the Chemical Pulp Division, regretted the poor year just closed, which showed light demand and low ruling prices.

**President Hastings' Address.**

The report of A. C. Hastings, the indefatigable president of the Association, was, in part, as follows:—

At our annual meeting in 1910 we congratulated ourselves that the tariff and its consequent annoyances were a thing of the past, and I took occasion to say that I did not believe it would interfere with our business for some time to come, but in spite of our hopes and desires we have been investigated by a tariff board of the United States Government with a view of deciding whether we, with a duty of about 9 per cent. on our finished product, in some grades of paper, and our wood pulp put upon the free list, under certain conditions, should not be subjected to a still further reduction, and I imagine when all the duty is taken off a bonus will be offered to the exporting country. Already, and before this tariff board is given an opportunity to report its findings, we are put upon the free list by a so-called reciprocity agreement with Canada, which proposes to put paper and pulp on the free list, and in return we are to have some articles, foreign to the paper business, allowed to enter Canada free; but until such time as Canada chooses we are not allowed to ship any paper or pulp in there except at a higher rate of duty than even under the Dingley law. The injustice of this should appeal to even the Congress; we at least should have the protection of the maximum rate until our northern neighbor gives us her raw material in the shape of wood from her Crown lands, and allow us to ship into Canada our product on the same terms, and then, possibly, the minimum rate.

There is no other manufacturing business, I believe, in the United States which has been so harassed and abused as has the paper manufacture in all its branches, and solely through the selfish desire of one class of publishers to buy their paper at a price which would not

warrant the average paper mill staying in business; but I suppose as long as these people are our customers we must expect similar treatment. If it be so, why be slaves, and why not arouse ourselves to the possibilities of our own business? The history of the paper business shows that while at all times we have been able to supply the legitimate demand of the newspapers, we have not sold our product upon the basis we consider it should be sold, and the conditions to-day are such that there is no reason why we should not set a basis of trading and live up to it—the matter of price will adjust itself.

No industry has ever prospered for any length of time where exorbitant profits were realized; therefore, a legitimate manufacturing profit is what we should look to, and in that way not invite over-production, through investments made in new mills, and our customers should not object to this.

The secretary, C. J. McNair, eloquently gave his ideas as to the true functions of such an association:—

"This is not a sentimental organization. It is not founded upon legend, nor is it given to reveries. It is not lulled to sleep by the droning of bees, nor influenced by imaginary voices in the air. It is a practical body, and its work is to help those actively engaged in the manufacture of paper to solve practical problems. To accomplish this purpose it aims to secure definite information from all parts of the world upon subjects of interest to the paper industry, and to disseminate to the mills this information. To do this work effectually, and to achieve results that will be of benefit, we must all stand firmly upon the broad principle of working together for the advancement of the interests of the industry, and the greater the concerted efforts the greater will be our individual success and intelligence. The American paper manufacturer, as well as this association, has been unjustly maligned times without number, and, while we look to the organization to lend its aid in defending unfair attacks, it will not be progressive if we call upon

it to devote all its time and energy to our false accusers. In fact, the smallest thing in business is the futility of constantly harping upon the antagonism of consumer and producer, between whom harmonious relations should prevail. What we expect of the association is that it will be our gathering place for statistics relative to our industry, as well as information regarding manufacturing processes and raw materials. We must aim not only to maintain the high place that the manufacture of paper holds in the United States, but also to elevate and broaden this position, and we believe that only by co-operation and organization and by a greater knowledge of our business can we achieve these results."

Arthur D. Little, official chemist, read a paper in which he dwelt largely on the great need which exists for a technical school for the teaching of paper technology, to encourage research and the improvement of methods. He also referred to the investigations which had been going on with the sulphite process and methods for its control; also the problem of disposal of waste liquors from pulp and paper mills. Another question which was receiving considerable investigation was that of temperature in determining the percentage of moisture in pulp.

H. S. Bristol, Assistant Director of the Forest Products Laboratory at Madison, Wis., read a paper on the work of the Forest Service Ground Wood Laboratory at Wausau, Wis. The keynote of this address, in justification of the forming of the above laboratory, will be found in the following extract:—

"Fully 90 per cent. of the wood used in this country for the manufacture of ground wood is spruce, one-third of which is imported from Canada; that these imports have been gradually increasing for a number of years, and that the ratio of the imported spruce consumed to domestic spruce has also been on the increase. The meaning of this does not have to be explained to those familiar with the pulp and paper in-

dustry, and none understand more clearly than the manufacturers of news paper what the ultimate end will be if this state of affairs continues. Under present commercial conditions the news print industry is absolutely dependent upon ground wood. Ground wood means spruce and water power and Canada has the advantage of us in both. The final result of continuing under present conditions is plain, and has been pointed out again and again, viz., our ground wood industry will be transferred across the border line.

Repeatedly the question has been asked: "What can we do to retain this great industry within our boundaries?" And as often the answer comes back: "Make ground wood, if possible, from other woods."

Walter McCulloch, Consulting Engineer, New York State Water Supply Commission, gave an exhaustive address on "Water Storage and Water Power in New York State. His conclusion was as follows:—

"Judging by the experience of the past five years, it is safe to predict that the State officers, civic societies and individuals guarding the interests of the public in the Adirondack Park will never consent to the use of State land for reservoirs, power development, or any other purpose except under absolute State ownership and control. We, therefore, contend that if the conservation of the flood waters of the State of New York, which are now permitted to run to waste, is to be accomplished at all, it must be accomplished by the State and for the general good of the commonwealth.

"We realize that there are many different opinions on the points involved in water storage and water power improvement, but we feel that great progress has been made in the last three or four years toward bringing the persons holding these views nearer together. It is only by a free and frank discussion of these problems that a rational and proper solution will be found. Extreme views must be modified and all interests must work together for the common good."

**NOVA SCOTIA WATER-POWERS\*.****By W. G. Yorston, C.E., Sydney, C.B.**

The province of Nova Scotia has no large rivers and the water-sheds on which water may be collected are comparatively small. Six hundred square miles is about the area of the largest watershed in the province that the writer is aware of, and the average watershed area of streams is probably not more than one-third that amount. This is compensated for to some extent, however, by the fact that many of our streams have a rapid descent and offer fairly high heads for the utilization of the water. In the province there are powers to be found capable of development under heads of from 100 to 400 feet, although in every case where such high head exists the watershed is limited in extent. I may say in this connection that I have investigated one water-power having but ten square miles of watershed which is well worth development, as there is a total fall of 275 feet in a little over two miles as well as practically unlimited opportunities for storage of water on the watershed.

In all parts of the province there are water-powers which are well worth development and which have not so far received attention. On others of our streams the development is fairly well advanced, and some few of our rivers, particularly the Mersey and St. Croix, are at present generating quite an amount of power. At the same time no one of our streams has the development of its full power completed, and in general it is true that so far our power developments have been on those streams which have the greatest amount of natural storage in the shape of lakes, and practically nothing has been done in the way of creating storage artificially, in order to improve the powers on streams having a deficiency of natural reservoirs.

\*Condensed from an article in Canadian Forestry Journal.

It is most unfortunate that so far no data as to stream flow in the province of Nova Scotia is obtainable. The only information to be had bearing on the subject is the rainfall records taken at a few places in the province. It is not often that even the rainfall records for the immediate locality of the stream are to be got, and recourse must be had to records for other places, distant sometimes over a hundred miles. It is evident that calculation based on such data must be after all only an approximation, the accuracy of which will depend in large measure on the judgment and experience of the one who is making them.

At this date so little demand for water-power has been in evidence that all the in connection with some of the best Nova Scotia water-powers are not even fully known. It is found that, as a rule, the majority of our large factories are located in the large centres of population, and for many of the different factories there are considerations which make this imperative. At the same time there are very many uses to which facts in connection with some of the best which the more vigorous prosecution of our mineral development is only one. Besides, very many of our powers are sufficiently large to warrant the expense of quite lengthy transmission lines in order to utilize the power at some more convenient point where manufacturing can be more economically carried on.



By the courtesy of Wm. Barber & Bros., of the Georgetown Paper Mills, the "Pulp and Paper Magazine" is able to adorn its office with a fine reproduction of Wm. Thorne's celebrated painting, "The Girl in Blue." The picture is nearly two feet in height, and is evidently a faithful copy of the original work from the hand of one of America's greatest living portrait painters.

J. R. Barber, of Georgetown, Ont., has returned from Cuba with his health greatly improved.



### MEASURING FLOW OF WATER.

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In considering the value of a natural stream as a source of power or water supply, the volumes and variation in the flow available will be questioned with greater or less exactness. In estimating such a value it is unwise to form more than a general opinion from average run-off conditions based upon drainage area tributary to the stream, or upon the record of other streams in the same locality, though a knowledge of those conditions may be very desirable. Direct observations should be made of the stream under consideration. The flow should be determined on the best information obtainable, and not only as to quantity of water available under maximum and minimum conditions, but also as to duration and extent of fluctuations between these limits.

Although average and extreme low water conditions generally control or limit the extent and usefulness of a plant, a knowledge of the volume of flood flow is of importance in arrangement and construction of dams, designing capacities of spillways, and in making provision against floor damage to buildings and other works. These considerations of flow of a given stream are only determinable from actual tests.

It is not expected, however, that one should delay his decision as to character and extent of a development until a series of tests have actually been made covering every stage of flow worthy of one's attention. Inspection of the banks, high and low water marks, investigation of the uses made of waters of the same stream above and below the site in question, and testimony of the younger as well as that of "the oldest inhabitants" of the locality, will serve as valuable checks on opinions formed from actual tests and estimates of flow made at different stages of stream flow.

In a previous article it was stated that under most circumstances the measurement of a quantity of water could be determined by ascertaining the velocity

of its discharge through some kind of passage-way or orifice whose dimensions were ascertainable. For most practicable purposes measurement of the flow of streams can be satisfactorily performed by direct determination of velocity and cross sectional area of the natural channel, and for measurement of flow of large streams it is usually the case that no other methods are practicable.

As rate of flow consists of the product of a given cross sectional area and the average of velocities of all different portions of the stream as it passes the given section, the value of a computation of flow depends directly upon the care and accuracy with which both of these factors have been obtained. Measurement of cross sectional area may present no unusual difficulties, but determination of average velocity of current passing a given cross section is difficult from the fact that the velocity of the stream at every point of the cross section is continually changing.

The irregular rolling, surging, and boiling motions of mountain streams, so clearly indicative of continuous changes in direction and velocity at every point of a cross section, continue, in some degree, even after the waters reach a point down stream where the flow is smooth, noiseless and with velocity that is scarcely perceptible. The motions of flowing water are little less erratic than those of the wind. By releasing a small quantity of heavy oil, liquid dye or a handful of bran some distance below the surface of a quietly running stream of clear water, these irregularities of currents and velocities are made apparent by their drawing out the discolorations in a confusion of intertwining figures, and great irregularities of flow exist even when the rate or discharge of the stream may be practically constant. They seem to be largely dependent upon the alignment, length, shape, and roughness of the channel, but are present to greater or less degree in streams flowing in all

kinds of channels. Open stream measurements should, therefore, be made with due regard to the existence of continuous fluctuations in direction and of velocity of currents, and methods should be employed which will result in eliminations of errors compatible with the purposes of the gaugings.

When a stream is large, or for other reasons employment of weir measurements would be impracticable, recourse may be had to other direct measurements of flow, which, in many instances, are capable of being employed with as much exactness as the occasion will demand, and without being attended by the loss of time, trouble, and expense incident of installation of a weir.

In considering the merits and adaptability of any method, the fact should not be lost sight that employment of natural cross section of the stream is common to all; that the measurement of cross section and of velocities constitutes the main factors in computation of stream flow and of these two factors, accurate measurement of velocity is the more difficult to obtain. Any of the methods which may be employed require accurate determination of cross sectional area of the stream at one or more places, and any measurements made for that purpose should be taken with great care. The means employed must be adapted to the size of stream and the facilities afforded for the work. The detail of processes employed by the engineer or surveyor may differ from those used by the mechanic, but each, having the same object in view, should arrive at the same result.

Ordinarily the cross section is understood to be in a vertical plane at right angles with the thread or main direction of the stream as it passes the place where the section is taken.

The purpose of taking cross sectional measurements is to determine the form and area of cross section of the stream, for if this area, found in square feet, is multiplied by the average velocity in feet per second at which all parts of the

stream flow through such a section, the product will be the whole volume of stream flow in cubic feet per second. Determination of the form and magnitude of a section will require measurement of breadth of the stream, and a number of measurements of its depth, taken at stated intervals, across the whole width at the place where the section is taken. The closer the intervals of depth measurements, the more accurately will the section be obtained, but for convenience in computation of the sectional area it will be best to take depth measurements at equal intervals.



#### **BRITISH CANADIAN PULP AND PAPER COMPANY.**

(Special to Pulp and Paper Magazine.)

Vancouver, March 4.

At a shareholders' meeting on Wednesday of the British Canadian Pulp and Paper Company, it was decided to increase the capital stock from \$1,000,000 to \$2,500,000, and turn over the assets to a syndicate represented by Lester N. David. In return the present shareholders receive share for share in the new company, getting preferred stock, which constitutes half of the two million and a half capitalization. Ever since its inception three years ago the company had been in financial and other troubles. The promoters, in forming the company and constructing and operating the first paper mill in Western Canada, met many unforeseen obstacles blocking the path to ultimate financial success and everyone now feels satisfied and much relieved at the result of the negotiations. At the meeting \$273,875 of the paid up stock of \$425,000, was represented. The expenditures of the old company had been about \$575,000, and the new interests will pay debts amounting to approximately \$250,000.

The assets are a soda pulp mill at Port Mellon, about 25 miles from Vancouver, with a production of 25,000 lbs.

a day. The plant was built for two soda stock machines, but only one of 8 tons a day was installed. \$400,000 was spent on this plant and \$200,000 more will be spent on the new machine, and in developing a 5,000 h.p. water-power adjoining.

The company also holds about 56,000 acres of pulp timber limits at Quatsino, at the north of Vancouver Island. There they have one of the best water-powers in British Columbia capable of developing 25,000 h.p. Plans for a paper mill there had been prepared by Chas. B. Pride of Appleton, Wis., for the old company, and it is likely that the new company will work on these. They have agreed to spend \$750,000 at Quatsino and to start at once, under the terms on which the limits were granted to the former holders by the government.

It is said that English capital is behind the new company. Mr. Lester N. David's address is Dominion Trust building, Vancouver.



#### SPANISH RIVER PULP AND PAPER COMPANY.

The Spanish River Pulp and Paper Mills, Limited, Espanola, Ont., have been recently successfully reorganized, and have made plans for very considerable extensions. The engineering work will be carried on under the supervision of Joseph H. Wallace & Co., New York and London, and the general management, so far as we understand, will be continued by A. E. Millington, who has made a successful record during the last five or six years. The plant already has a productive capacity of 150 tons of ground wood daily, and from the first was adapted for an easy increase in case occasion should require. Five pairs of turbines are in operation, developing up to over 10,000 horse-power. The dams and other development work, as well as the sources of pulp-wood supply, have always been looked on as excellent of their kind. The extensions proposed for

the immediate future are a news print plant of 100 tons daily capacity, with sufficient chemical pulp for the same, and in the near future an extension of the news print and chemical pulp plants to insure a total capacity of 200 tons of news per day. A new building is to be erected, 525 feet in length. Contracts have already been awarded as follows: Two Fourdrinier machines, each 164 inches wide, with forty dryers, capable of turning out fifty-five tons daily, to the Pusey & Jones Company, Wilmington, Del. The Waterous Engine Company, of Brantford, Ont., secured a contract for eight beaters. The Holyoke Machine Company, of Holyoke, Mass., will supply the turbines, two pair, 1,500 horse-power per pair. The Robb Engine Works, of Amherst, N.S., will supply four 280 horse-power boilers. Two additional 1,250 k.w. electric generators will be placed in position to supply the mechanical pulp plant by the Westinghouse Company, Hamilton. The company expects to have the plant in operation before the end of the year.

The Dominion Bond Company have concluded arrangements for an issue of \$1,300,000 of the six per cent. first mortgage sinking fund gold bonds in London, England.

The books for the London and Canadian offerings opened on March 6th. The bankers for the issue in England are the Royal Bank of Scotland, London, Eng., and the London and South-Western Bank, Limited, London, Eng. The bonds are being offered in Canada at 97½. The capitalization of the new company consists of an authorized amount of \$2,500,000 of first mortgage 6 per cent. sinking funds bonds, of which \$1,300,000 now being offered are issued; \$2,000,000 7 per cent. preference stock, of which \$1,500,000 is issued, and \$2,000,000 of common stock, all of which is issued.

The net earnings of the company for the past three years were as follows:—

Year ending Dec. 31, 1908...	\$ 50,893 81
Year ending Dec. 31, 1909...	169,555 30
Year ending Dec. 31, 1910...	207,899 93

### COST OF PULP AND PAPER- MAKING IN UNITED STATES AND CANADA.

The data furnished by the United States Tariff Board in response to the resolution of Senator Cummins on cost in Canada and the United States of articles in the reciprocity agreement as they affect paper and pulp are given as follows:—

### CLOTH, VELVET AND WOOLEN PAPER.

According to a writer in the *Papier Fabrikant*, a new paper specialty has been recently put upon the market, known locally by various names, such as cloth paper, wool wrapping, and velvet paper. One side of a sheet looks like ordinary paper, the other side like cloth,

#### Ground Wood Pulp.

	Lowest.		Highest.		Average.	
	U.S.	Can.	U.S.	Can.	U.S.	Can.
Wood .....	\$ 7 33	\$5 74	\$15 01	\$9 71	\$10 64	\$7 07
Manufacturing, lab.....	08	1 50	3 78	2 46	2 12	1 93
Other cost .....	29	82	7 00	3 30	2 02	2 14
Total cost in bulk,						
mills .....	10 13	9 57	20 07	14 72	14 78	11 13

#### Sulphite Pulp.

Wood .....	\$13 28	\$12 02	\$25 80	\$18 04	\$19 08	\$14 32
Manufacturing, lab.....	2 09	2 87	4 83	5 45	3 63	4 15
Other cost .....	7 48	7 20	13 02	9 51	10 01	8 87
Total cost in bulk,						
mills .....	24 11	24 09	38 43	33 00	32 71	27 33

#### News Print Paper.

Ground wood pulp.....	\$ 7 70	\$7 18	\$18 54	\$10 88	\$12 61	\$9 22
Sulphite pulp .....	6 31	3 71	13 89	8 54	8 43	6 50
Manufacturing, lab....	2 19	2 97	6 06	3 55	3 25	3 25
Other cost .....	5 75	8 44	11 63	10 12	8 24	9 42
Total cost in bulk,						
mills .....	25 38	25 17	39 57	30 27	32 53	28 38

One table which summarizes all the returns from both Canada and the United States shows a wide variation as to cost of wood and pulp, the advantage being with Canada. Here is the table of costs of production for one ton of pulp and news print paper in the United States and Canada:—

It will be seen that the lowest cost in United States mills is 11 cents a ton more than the lowest cost in Canadian mills. The highest cost in United States mills is \$9.30 more than the highest cost in Canadian mills. The difference in the average cost a ton is \$4.15 in favor of Canada, to which must be added the longer rail haul from Canada to the United States when the paper from that country comes into competition with the American product.

owing to the presence there of wool fibres. The wool fibre is ground up very greasy in special machines and sprinkled uniformly over the web while it is still on the wire, or more usually with an adhesive over the finished paper. This new kind is used chiefly for wrapping better sorts of catalogues, and also for advertisement posters. The wool can, of course, be dyed, and all kinds of colors and grading can be obtained on the finished surface. It is, however, rather expensive. The raw material of the paper is chiefly sulphate pulp of about the kind used for making cheap blottings. This pulp is mixed with one-third its weight of any strong unbleached chemical pulp, but must itself be bleached if the uncoated side of the paper is to be white. It is also per-



missible to use mechanical pulp, but not more than 25 per cent., in which case, of course, the percentage of sulphate pulp has to be reduced to 50. The mechanical pulp must be soft and spongy, and its color must obviously depend on the color required in the finished cloth paper. It is necessary sometimes to cover the non-cloth side by fixing on to it a sheet of light colored or white paper. The great point with regard to the paper to be covered with wool is that it should combine strength with sufficient sponginess, to give it the requisite absorbing power. Here the sizing plays an important part. If it has been overdone, the size subsequently applied to stick on the wool cannot adhere properly, so that the wool coating will crack off when the paper is dry. For the same reason the pulp must not be ground too greasy, i.e., the hollander must work with sharp knives on comparatively small quantities at a time. Fillings must be avoided as far as possible. If, however, the necessary weight cannot be obtained without them, fillings must be selected that do not choke up the pores so much as to prevent the adhesion of the wool coating. Heavy spar and fine china clay probably give the best results, but they must be very finely divided and quite free from sand. On the wire the water must not be drawn too quickly from the pulp. The shaking should be quick, but with a small stroke, and only one suction box should be used, and the draught of it should be moderate. If the box draws too hard the web is made wavy and blistered. The couch roll should press fairly strongly, and must exert an absolutely uniform action over the whole width. The drying must be done gradually with a large number of cylinders, the hottest cylinders coming last, for fear of blistering by developing steam in the interior of the paper.



The Wayagamack Pulp and Paper Co. will shortly begin the work of constructing their mill on Baptist Island, near Three Rivers, Que.

## FROM QUEBEC PROVINCE.

(Special to Pulp and Paper Magazine.)

Quebec, March 11, 1911.

For several months past many owners of timber limits in Quebec Province have been approached by representatives of the Hearst interests, who state that they wish to buy a large tract of limits, with water-powers, capable of working a 400-ton newspaper mill. In some cases options were secured by these representatives, whereupon nothing further was heard of the agent. Taking the number of such agents who claim to represent Mr. Hearst as a guide, one would suppose that the entire staff of a large American journal were scouring the country for limits.

It has been ominously suggested that all this is a movement to frighten news print paper manufacturers.

The provincial authorities are compelling the strictest observance of the laws governing the cutting of pulp-wood for export. Some operators, who have been buying from farmers with a view to exporting, now find themselves burdened with large quantities of wood which was cut on lots for which letters patent have not been issued.



—There has been lately a rapid increase in the importation of paper into Russia, due largely to labor troubles in the local mills, many of which have closed down. The falling off in domestic production should bring about a good opening for Canadian paper boxes, cardboard, bags, wrappings and wall paper. Russia's consumption of paper and paper products last year was 648,000,000 pounds.

—To a subscriber, who asks for an estimate of putting up a pulp mill, we would say that an approximate figure would lie between \$5,000 and \$6,000 for each ton of the production. For a 50-ton mill, \$6,000 per ton should certainly be reckoned on, with somewhat less for each increased ton of capacity.

### PULP AND PAPER DYEING.

At the Grenoble Technical School, M. Durayon gave a lecture on pulp and paper dyeing. He divided the dye-stuffs suitable for the purpose into six groups:—

1. Acid dye-stuffs.
2. Basics.
3. Eosines.
4. Direct cotton colors.
5. Sulphide colors.
6. Pigments.

These are generally fast to light but have less covering power than the basics. They resist acids and, with a few exceptions, alkalis and go well on to paper stuff when it is well sized. They dye very evenly. The solution of the dye-stuff is added to the unsized pulp, which is then sized with 3 per cent. rosin soap and 3 per cent. sulphate of alumina.

These have great covering power, and the colors are bright but not very fast to light. When used along with acid colors their coloring power is fully used and the waste waters are nearly colorless. When using the two classes together they must be dissolved separately and mixed in perfect solution. Basics should not be made into too concentrated solutions. They may be used with either sized or unsized pulp.

These are very bright pinks and scarlets, very fugitive to light. They are very soluble. An addition of a little borax to the sized pulp gives deeper colors. The eosines are generally used for the preparation of lakes.

These are usually employed for unsized papers, such as copying and cigarette papers and blottings and also for parchment. On sized pulps for wall papers they give colors very fast to light and friction, and they are useful for dyeing mixed fibres. The waste water is almost free from color even when dark shades are dyed. They are dearer than basics and acid dye-stuffs.

Sulphide of sulphur colors are practically direct cotton dye-stuffs, but they require to be dissolved in a solution of sulphide of sodium. This solvent must be thoroughly removed by washing before the pulp is sized.

As these are insoluble in water they are merely united mechanically to the fibre. They are very fast to light and, with exceptions, to acids and alkalis. They are easy to use. The pigments referred to by M. Durayon are the recently introduced vat dye-stuffs, reduced in the vat after the manner of indigo. In paper coloring, however, they are used purely as pigments.

Dyes should be kept in closed vessels and the store-room should be neither too damp nor too dry. The solution should be made in wooden buckets with boiling water, and a good stirring. Condensed water should be used.

Pure soft water is an absolute necessity in paper dyeing. It is not always easy to get uniform results, especially with the basics. Resistance to alkalis is necessary in wrapping and bag papers, but most dye-stuffs recommended for paper dyeing are sufficiently fast to alkali. Resistance to acid is necessary in dyes for papers sized or coated with anything that may ferment or papers that are to be parchmented. Ground wood papers cannot be dyed fast to light. Wall-papers and posters are expected to have this quality. M. Durayon called attention to the indanthrene class of dyes. These are vat dye-stuffs used in paper dyeing as pigments. They are very fast, but, unfortunately, very dear.

Some colors change in drying over the cylinders but usually regain their original shade on cooling. If not, the drying must not be hurried, and the first cylinders should not be very hot. The necessity of almost colorless waste water is obvious. Most artificial dye-stuffs satisfy this requirement, and with some acid colors, and also a few direct cotton colors, the addition of basic chloride of aluminium to the dyed and sized pulp in the hollander improves matters.

## PULP AND PAPER NEWS.

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The Dominion Government Printing Bureau gave an order last month to the St. Lawrence Pulp and Paper Company for seventeen tons of millboard.

\* \* \*

A rossing mill is being put up at Ellis Bay, Anticosti. The lumber and pulp-wood cutting industry of the island seems to be increasing rapidly, the total cut expected this year being over 750,000 logs.

\* \* \*

Clyde River Pulp and Paper Co., Limited, held its annual meeting at New Glasgow, N.S., and reported a favorable year's business. Archibald McKenzie was elected president and Arch. McColl vice-president.

\* \* \*

J. R. Booth, on the order of the United States Interstate Commerce Commission, has been refunded \$351 on account of overcharge on thirty-two carloads of news print from Ottawa to West Carrollton, Ohio, shipped on the Ottawa and New York Railway.

\* \* \*

The Ontario Legislature (Private Bills Committee) settled the dispute between the Public and Separate School Boards of Sturgeon Falls by arranging a new agreement in which the Separate School Board gives up all claim to taxes from the Imperial Pulp and Paper Company.

\* \* \*

S. Bonfield, one of the chief promoters of the reorganized Dryden Timber and Power Company, has been busy completing plans for the new mill. The sulphate process will be used, so as to facilitate the use of jack pine, of which a large proportion of the adjacent timber consists.

\* \* \*

At the annual meeting of the F. N. Burt Company, Limited, Toronto, the directors submitted a very satisfactory report, the profits on ordinary business being \$160,900. The usual common and preferred stock dividends were declared. The board of directors was re-elected.

It was decided to purchase the Dominion Paper Box Company and to increase the preferred stock by \$750,000.

\* \* \*

The Pejepscot Paper Company, which owns a big tract of land in St. John county, Salmon River, New Brunswick, whence they ship many barges loaded with pulp-wood to Portland, Me., each season, are making a good move. They have decided to establish small nurseries to reforest areas that are now bare of trees. They are also to establish the lookout and telephone system to protect their forest from fire.

\* \* \*

A despatch from Ottawa of 6th inst. stated that the low water situation has become so serious that the city wired the Waterous Engine Co., of Brantford, asking for the loan of a fire engine pending the award of a contract for a new steamer. Ald. W. J. Campbell has given the services of an engine owned by him, and J. R. Booth, the lumber and pulp manufacturer, has made the same offer. This will give the city six engines. The water pressure from the mains is extremely low.

\* \* \*

Lieut.-Col. Colin McArthur, president of Alex. McArthur & Co., Limited, paper manufacturers, of Montreal, passed away on February 28th after an illness of two months. The deceased was born at Longue Pointe seventy-five years ago. Mr. McArthur had during his whole life deeply interested himself in military affairs, and until several years ago was colonel of the Duke of Connaught's Royal Hussars. He was also prominent in Montreal business circles, having been connected with the paper industry, especially the sheathing and tarred felt branch, and had during the past six years been president of the Alex. McArthur Company, founded by his brother, the late Alex. McArthur. For the past four years Col. McArthur had been unable to attend to business.

The Fort Frances, Ont., Record, says: "The Minnesota and Ontario Power Company have a number of men at work converting the five undeveloped units in the Canadian power house into a pulp mill. Three grinders will be placed in each unit making fifteen in all. This will be the extent of the large pulp mill promised and even this will be used to grind pulp not for a paper mill on the Canadian side but for the paper mill in International Falls. In this way the remainder of the power will be used by the American company so that no other company or individual need apply for power of any kind as it will not be available. This is the answer the Power Company can now make to the Ontario and Dominion governments when asked to furnish power.

\* \* \*

Among labor notes of the Ottawa "Free Press" on February 18th we noted the following: "The paper-makers held a brief meeting on Sunday last, only necessary business being disposed of. A resolution to adjourn was then passed to attend the funeral of a sister of Bro. Geo. Anderson, the whole of the members going in a body. Low water is still causing slackness, the pulp mill working to about the capacity. The paper machines are kept running at an average of four carloads a day of pulp, being brought in from Buckingham and the Laurentide Paper Company. The local members are elated at the statement of the Quebec Premier, who promised the Trades Congress delegation that he would investigate the matter of the Quebec paper mills, who are contravening the Lord's Day Act by working their mills on Sunday."

\* \* \*

The Imperial Paper Mills are instituting a suit against the Quebec Bank and Geo. Bordon & Co., lumbermen, Cache Bay, Ont., because of the seizure of spruce and balsam logs valued at \$30,000, which both parties claim as theirs. The logs in question were held by the bank as security for the indebted-

ness of the paper company, which the plaintiffs claim was an unfair preference, for, they allege, the company was already in liquidation at the time, and the assets represented by the logs should go to the benefit of the ordinary creditors. They also declare that the defendants so mixed the logs with logs of their own as to entail heavy expense in sorting them. The paper company and their receiver, therefore, sue for unstated damages. The defendants declare that the logs were their property, and that they had a right to do as they pleased with them, and that the plaintiff company was not insolvent at the time the security was given; or, if insolvent, that the fact was not notorious and quite unknown to the defendants.

\* \* \*

The new ground wood mill of the East Canada Power and Pulp Company, Limited, at Nairns Falls, near Murray Bay, Que., on the line of the Quebec and Saguenay Railroad, is expected to be completed by October 1st. The hydraulic development will produce approximately 10,000 h.p. Twelve grinders will be installed in three lines, each line to have 2,400 h.p., and taking wood thirty inches in length, and having a capacity of eight to nine tons a day, dry weight. The wet machines and save-alls will be built by the Sherbrooke Machine Company, and the presses by the Canadian Boomer & Boschert Company. Centrifugal screens will be manufactured by the Waterous Machine Company, of Brantford, Ont. The company has taken over the limits of the Murray Bay Lumber and Pulp Company, which contain a large supply of spruce, and the property of the Labrador Power Company, which handles the franchises for furnishing light and power to the villages of Murray Bay, Point a Pic, Cap a l'Aigle and St. Irene. The engineer is George F. Hardy, of New York City, and the officers are: President, Rodolphe Forget, of Montreal; vice-president, Charles W. Tooke, of Syracuse; secretary and treasurer, L. C. Haskell, of Montreal.



## A VISIT TO SOME NEW ENGLAND PAPER MILLS.

(Special to Pulp and Paper Magazine.)

Canada is justly proud of her paper industry, her forests and pulpwood resources; she is also willing to see that when it comes to producing the goods in paper our American cousins are also "on the job." This was impressed upon the writer during an interesting visit to a few of the New England paper mills about the first of the year.

The first mill visited was the Walloomsac Paper Co.'s mill at Walloomsac, N.Y. This town has many historic reminiscences and is the site of many stirring events in the early days when the red men still roamed the wilds. It is also the scene of many hard-fought battles during the war of 1776. The Walloomsac valley is one of the beauty spots of this section of N. Y. State and on the river which flows through the valley is situated the paper mill. The owners of the mill and officers of the company are: R. H. Thompson, G. S. Thompson, F. L. Stevens, F. N. Stevens and H. Q. Elderge. The mill is equipped to make all the first-class grades of wall papers and is making a line of this grade of paper which cannot be equalled. The equipment consists of two Harper Fourdrinier machines, one 86 and one 88 inch, nine 700-lb. and three 1,200-lb. beaters, two Jordans; also a patent digester for reducing paper and broke. This company has also two other mills, one at North Hoosick, which is about one mile from Walloomsac. This is an up-to-date one-machine mill, making the oatmeal papers which have been so popular in the wall paper trade for the last two seasons.

The other mill is a fully equipped six-machine Tissue mill and is situated at Middle Falls, N.Y. This mill grinds all its own pulpwood and turns out a remarkably fine grade of Tissue. This company reports orders coming in sufficient quantities to keep the mill comfortably busy. An old Toronto boy, C. Nelson Gain, an experienced paper

maker and graduate in chemistry, is chemist for this company and is making good in his line.

The next town visited was Windsor Locks, Connecticut Valley. Windsor Locks can boast the finest waterpower any manufacturing centre could wish. It has four paper mills, the Windsor division of the American Writing Paper Company, the Anchor Mill, the Dexter Mill, and the F. H. Whittelsey Company Mill. The Windsor division mill manufactures all grades of rope, jute, and fibre paper and boards, also making an excellent line of tag and Bristol boards. The equipment consists of three cylinder machines, 80, 88 and 100 inches, 19-700 to 2,000 lb. beaters turning out about 40 tons of paper in 24 hours. This mill was originally the Seymour Paper Co. mill making writing paper. It was taken over by the American Writing Paper Co., and under the supervision of Mr. J. P. O'Brien, was converted into a well-equipped rope and jute mill. Mr. O'Brien is one of the foremost rope and jute experts in the country and has gained a reputation to be proud of in the paper business.

In conversation with the paper men in this section, one of the first questions asked was: "What do you Canadians think of reciprocity?" The scope of the reciprocity proposals before the Commission being at that time to the public rather an uncertain quantity; there was not much to be said. But there was one opinion expressed by all the paper men: "We want your wood and your pulp, and free entry for our paper into your markets;" and as is characteristic of our American cousins they could not see why we should object to give up to them our great wealth of forest products. There can be no argument on the subject of the United States having failed to conserve their supply of both wood and water. Not only is the supply of wood running short, but the very fact of the wood being cut down indiscriminately and wastefully, has dried up many of the streams and caused much of the trouble in the water supply. When

Canada still has an abundant supply of both products, why should we not derive the full benefit thereof by turning our wood into the manufactured article in our own country, and thereby help in the building up of the great nation, of which we are a part?

When our country is building up by leaps and bounds both in agriculture and manufacturing interests; when there is practically no real reason for disturbing our tariff relation with our neighbors; when our farmers are more prosperous than ever before in the history of our country; when almost all our manufacturers are full of orders and running to full capacity; when our artisans and mechanics and all branches of labor are fully and renumeratively engaged; when the opening months of 1911 give promise of a record year in the prosperity of our country; why should our government attempt to disturb and unsettle these conditions? why should they not let well enough alone, and if our American cousins want any of our products let them pull down the high tariff wall they themselves have erected. The result of the tall chimney régime has been the building of a splendid home market for Canada. Let us not only all pull for careful conservation of our forests but also for conservation of our own home markets.

"Canada First."



#### KEEPING DYE OUT OF BACK-WATER.



Dye in back-water always means waste from the paper-maker's view, and not unfrequently causes unpleasantness, or even legal proceedings, on account of real or supposed damage inflicted on fish and on human beings using the water. It is not always possible to prevent loss of dye in the back-water but much may be done by adhering closely to the following rules:—

Dye solutions should never be added hot to the pulp; the mordant, generally

a salt of alumina, and half the rosin size should be added first of all, and well mixed up with the pulp before the dye and the other half of the size are put in.

In pulp dyeing, as a rule, combinations of dyes of various classes act better than single dyes, covering better and being faster, especially with papers containing mechanical pulp. Combinations of direct cotton dyes answer satisfactorily, provided, however, that the pulp is dyed before sizing. This is most important. If the size is put to the pulp before the dye, there is sure to be more or less dye in the back-water. The dye solution must be allowed to cool before adding it to the pulp, as above stated, and should be well mixed in for half an hour before the size is put in. A little salt, if added to the dyed pulp, helps the fastness of all kinds of dyes.—Papier Fabrikant.



#### CONSTRUCTION OF STUFF-CHESTS.



It is well known that it is important that the pulp should be well and properly diluted before reaching the wire, and everything depends upon the distributing box between the stuff-chest and the apron. The distributing chest is usually fed direct from the strainer by means of a wide copper pipe, the pulp entering at the bottom and flowing out at the top. This chest is, of course, as long as the wire is wide, and is fairly narrow, but about 18 inches deep, its top being from 4 to 5 feet, or even more, above the floor, according to the level at which the wire runs. To secure proper mixing of the pulp, it must be delivered into this chest from at least four openings, two of which must be right against corners of the chest, the others being uniformly distributed over the bottom.

In some cases the pulp is delivered from one opening only, in the middle of the bottom. In this case it is impossible to prevent the heavier parts of

the pulp from settling in the corners, where the flow through the inlet is not felt. At times, however, a stronger eddy at the opening stirs the pulp. The final result is obviously that the wire is fed at one time with thick pulp, at another with thin.

The shape of the pulp-chest is not without its importance. A chest retaining the usual rectangular shape, but with its sides sloping so that the bottom of the chest is decidedly smaller than the top, by offering a smaller bottom for the accumulation of sediment allows the latter to be more easily stirred up, as it lies thicker. This can be secured if wished by fixing slanting boards inside a chest with perpendicular sides. The best plan, however, is to fix check-boards projecting from the inner sides of the chest and slanting downwards. They should alternate on the two long sides of the chest, so that the edge of each projects beyond that of the board immediately over it. The clear distance between the edge of each board and the opposite side of the chest should be about  $2\frac{1}{2}$  inches, and the distance between two boards on the same side should be about 8 inches, which gives a perpendicular distance of about 4 inches between a board and the one next over it, but projecting from the opposite side of the chest.

This arrangement, combined with the entrance of the pulp through several openings, secures such a circuitous course on the way to the apron that thorough mixing is practically secured. The slant of the check-boards prevents much sedimentation upon them, but they should be cleaned from time to time. They can, of course, be put into stuff-chests of the kind just described, with their long sides slanting outwards from below, but then the width of the lower boards must be less than that of the upper boards, in proportion to the angle at which the sides slant.

It remains to notice a form of stuff-chest fed from the top. In this case the chest must be divided lengthways by a partition, which, however, stops at

about 4 inches from the bottom. The strainer delivers on one side of the partition and the pulp flows out on the other after passing under the lower edge of the partition. This kind of chest is generally found associated with cylinder paper machines, but with them, as with the ordinary flat horizontal wire, the stuff-chests with the check-boards as above described will generally be found to offer the greatest advantage. The best material for a stuff-chest is unquestionably sheet-iron. Both wood and cast-iron are cheaper, but the wrought-iron chest has the advantage over the wooden chest that it is far stronger, more durable, and much easier to clean, and over the cast-iron chest that it is lighter and not subject to being cracked by any accidental blow or by sudden changes in temperature.



#### CANADIAN PAPER IN SOUTH AFRICA.



It is difficult to understand why the Dominion, producing annually vast quantities of paper, should not be able practically to control the trade in such an article as this. It is anomalous that Great Britain, which does not produce a pound of pulp, should be able to supply three-quarters of the imports of this commodity. The greater portion of the balance comes from the United States. As this is a substantial item, it is hoped that if there are any factories in the Dominion producing paper bags, their attention will be directed to it, in the hope that they may be induced to compete. The same remarks apply to wrapping paper. The figures for wrapping paper, added to those of paper bags, make a total of over £79,000, a considerable sum, and one that Canadian manufacturers cannot afford to neglect.

The demand in wallpaper is for rolls made up in English sizes, namely 21-inch by 36 feet. The United States and Canadian sizes are 18 inch by 48 feet. In spite of the greater length it is very

difficult for dealers to obtain a higher price for the United States article than the British, the people being accustomed to a certain size and price. Another argument urged against the United States make is that, being narrower, it requires more labor to hang it. It will be seen that in 1906 the imports from the United States amounted to £1,953, but since then the trade has been practically killed. In that year one of the large United States factories sent a salesman

quarters of the business should be diverted into their hands, as their paper is most favorably known in this market. It is stated that Canadian patterns are very much finer and more pleasing to the eye than the British.

As far as one can judge, the bulk of the trade in printing paper for newspaper work goes to the Dominion. It is hard to know of just what the £68,000 credited to Great Britain consists. Canadian paper is said to be brittle and

	1909.	1908.	1907.	1906.
Paper Bags—	£	£	£	£
United Kingdom .....	22,309	20,974	20,368	18,765
United States of America .....	5,614	2,972	3,336	3,374
Total .....	29,650	25,561	24,828	23,745
Hanging or Wall—				
United Kingdom .....	25,890	23,768	21,233	29,202
Germany .....	2,954	2,888	3,497	7,249
Total .....	29,824	27,207	25,353	40,039
Printing—				
United Kingdom .....	68,994	64,909	81,572	81,924
Canada .....	34,149	34,709	19,052	11,929
Germany .....	5,535	6,715	6,156	9,826
Sweden .....	2,639	3,383	1,822	1,083
Total .....	114,834	113,759	112,903	115,902
Wrapping—				
United Kingdom .....	12,998	14,272	11,933	13,657
Canada .....	.....	10	.....	.....
Germany .....	8,545	7,794	8,761	7,110
Holland .....	4,200	1,397	409	241
Norway .....	4,198	2,952	1,896	2,514
Sweden .....	15,431	16,997	13,020	7,819
Total .....	49,883	47,000	40,312	37,951

over to South Africa, who succeeded in disposing of goods to this extent. Since then, however, the objection of the dealers seems to have taken root, with a result which may be seen by a reference to the statistics.

As the trade is of some importance and is likely to increase, in fact, the current year should exemplify this in a substantial manner, it seems unfortunate that the Canadian manufacturers cannot or will not conform to the English size. If they could do so, at least three-

rather coarse, but on the whole seems to give excellent satisfaction. The use of it might be increased among the weekly, semi-weekly and tri-weekly journals of the smaller towns, to whose attention up to a year ago it had not been forcibly brought.



The Wayagamack Pulp and Paper Co., Three Rivers, Que., have ordered some machinery for the new mill from Bentley & Jackson, Bury, the well-known English pulp and paper machine builders.



PULPWOOD CONSUMPTION, 1909.

(CONCLUDED)

Pulpwood Consumption by Provinces,  
Species and Processes.

The extent to which different woods are used in different processes in each province is shown in Table 3.

Three-fifths or 60.8 per cent. of the pulpwood manufactured in Canada was reduced by mechanical process; the sulphite process accounted for over one-third (37.2 per cent.) of the wood used,

Table 3.—Quantity of Pulpwood used in Canada, 1909, by Provinces, Species, and Process.

Quantity of Pulpwood Used.					
Province.	Total.	Spruce.	Balsam.	Poplar.	Hemlock.
Total—All Processes.					
Canada .....	622,120	516,030	100,095	5,188	700
Quebec .....	319,935	230,584	84,651	4,000	700
Ontario .....	187,352	174,461	11,791	1,100	...
New Brunswick .....	88,450	86,450	2,000	...	...
Nova Scotia .....	25,076	23,335	1,653	88	...
British Columbia .....	(1) 1,316	(1) 1,200	...	...	...
Mechanical Process.					
Canada .....	378,566	290,077	81,401	88	...
Quebec .....	237,351	168,807	73,454	...	...
Ontario .....	98,394	94,100	4,294	...	...
Nova Scotia .....	25,076	23,335	1,653	88	...
New Brunswick .....	19,745	17,745	2,000	...	...
Sulphite Process.					
Canada .....	231,422	209,728	18,694	3,000	...
Ontario .....	87,858	80,361	7,497	...	...
Quebec .....	77,659	63,462	11,197	3,000	...
New Brunswick .....	64,705	64,705	...	...	...
British Columbia .....	1,200	1,200	...	...	...
Soda Process.					
Canada .....	10,141	7,225	...	2,100	700
Quebec .....	4,025	3,225	...	1,000	700
New Brunswick .....	4,000	4,000	...	...	...
Ontario .....	1,100	...	...	1,100	...
British Columbia .....	(1) 116	(1) ...	...	...	...

(1) 116 cords unspecified wood used for experimental purposes.

and the remainder (2 per cent.) was manufactured by the soda process.

Spruce was the chief wood used in each process of manufacture. Over one-half (57.9 per cent.) of the spruce was used for mechanical pulp; two-fifths (40.6 per cent.) was manufactured into sulphite pulp, and the remainder (1.5 per cent.) was manufactured by the soda process. Balsam was used in the mechanical and sulphite processes only, and found greatest favor in the mechanical process; over four-fifths (81.3 per cent.) of the balsam was used in the mechanical process. Poplar is not adapted for manufacture by the mechanical or grinding process; (98.3 per cent.) of the poplar used was manufactured by the chemical processes, (57.8 per cent.) in sulphite mills and (40.5 per cent.) in soda mills. The soda process, though expensive, may be successfully used with more varieties of wood than the other processes. The small quantities of hemlock used were manufactured into soda pulp.

#### Mechanical Process.

The manufacture of pulp by the mechanical process requires great water-power and a long-fibred wood. Quebec, of all the Canadian provinces, best fulfils these conditions with its many waterfalls and extensive forests of spruce and balsam. Almost two-thirds (62.7 per cent.) of the wood used in the mechanical process is manufactured in Quebec; one-quarter (25.9 per cent.) is manufactured in Ontario, (6.2 per cent.) of the mechanical pulp is manufactured in Nova Scotia, and 5.2 per cent. in New Brunswick.

Spruce furnished 79.3 per cent. of the wood used for mechanical pulp, the remainder was balsam. The average cord of wood reduced by the mechanical process in Canada in 1909 produced 1,651 pounds of pulp. This is almost twice as much per cord as is produced by the chemical process.

#### Sulphite Process.

Ontario leads in the manufacture of sulphite pulp. Of the 231,422 cords of wood used in the sulphite process in 1909, 37.9 per cent. was used in Ontario, 33.6 per cent. in Quebec, 27.9 per cent. in New Brunswick, and 6 per cent. in British Columbia.

Spruce formed 90.6 per cent. of the wood used in the sulphite process, balsam 8.1 per cent., and poplar 1.3 per cent.

The average production of pulp for every cord of wood used in the sulphite process was 914 pounds.

#### Soda Process.

The soda process is not in general use in Canada. The four provinces manufacturing soda pulp with the percentage manufactured in each are:—Quebec 48.6 per cent., New Brunswick 39.5 per cent., Ontario 10.8 per cent., and British Columbia 1.1 per cent. Spruce, poplar and hemlock were used in the manufacture of soda pulp; of the total, spruce formed 71.2 per cent., poplar 20.7 per cent., hemlock 7 per cent., and wood manufactured as an experiment in British Columbia, 1.1 per cent.

The average pulp production per cord of wood used in the soda process was 961 pounds.

Many of the details of the pulp manufacturing business are here presented in tabular form. (See pages 138, 139.)

One-half the pulp mills of Canada are in Quebec, one-fifth in Ontario, and the remainder in the three provinces of New Brunswick, Nova Scotia and British Columbia. Measured by the average annual consumption of pulpwood, the largest mills are those of Ontario, which used 18,735 cords each in 1909. The average consumption per mill for 1909 was, in Quebec 12,797 cords, in New Brunswick 12,636 cords, in Nova Scotia 4,179 cords, and in British Columbia 658 cords. The average pulpwood consumption for Canada was 12,442 cords per

mill per year, 73.1 per cent. of the pulp manufactured was mechanical, 25.8 per cent. sulphite, and 1.1 per cent. soda.

### Exports.

Canada's foreign trade in wood pulp and pulpwood has consisted entirely of exports. Unfortunately, the tendency has been to export wood in the raw form of pulpwood rather than in the manufactured form of wood pulp. The data in the following tables refer to the calendar years and have been furnished by the Department of Trade and Commerce.

paid to Canadian exporters by the different importing countries were per ton, for chemical pulp, United Kingdom, \$40.04; United States, \$39.09; other countries, \$31.64; for mechanical pulp, United States, \$16.09; United Kingdom, \$10.26; other countries, \$9.98.

The pulp exports for 1909 were 40,939 tons greater, or 17 per cent. more than those for 1908. The increase was all in mechanical pulp; there was a decrease of 1,693 tons, or about 4 per cent., in the 1909 shipments of chemical pulp.

Each year the United States takes an increasing proportion of the pulp shipped

Table 5.—Quantity and Value of Wood Pulp Exported, with chief Countries Importing, 1908 and 1909.

Kind of Pulp and Countries to which Exported.	Quantity. Tons.	1908.		1909.		
		Value. \$	%	Quantity. Tons.	Value. \$	%
Wood pulp exported—aggregate.	239,805	4,070,928	100	280,744	4,898,842	100
Total mechanical pulp.....	199,118	2,523,736	83.3	241,750	3,378,225	86.1
Total chemical pulp .....	40,687	1,547,192	16.7	38,994	1,520,617	13.9
Mechanical Pulp—						
To United States .....	113,679	1,697,155	57.1	154,179	2,482,221	63.8
To United Kingdom .....	75,086	723,727	37.7	78,510	805,519	32.5
To other countries <sup>1</sup> .....	10,353	102,854	5.2	9,061	90,485	3.7
Chemical Pulp—						
To United States .....	32,326	1,150,422	79.5	37,336	1,459,340	95.7
To United Kingdom .....	7,519	359,812	18.5	1,049	42,007	2.7
To other countries <sup>1</sup> .....	842	36,958	2	609	19,270	1.6

<sup>1</sup>Includes in the order of their importance, as shown by exports for fiscal years 1908-09, France, Belgium, Mexico, Japan, China, Argentine and Cuba.

According to this about 63 per cent. of the pulp produced in Canada is exported. The proportion of mechanical pulp exported is comparatively large; 86.1 per cent. of the pulp exported in 1909 was mechanical pulp, whereas only 73.1 per cent. of the pulp manufactured in Canada was mechanically prepared.

The average value per ton of the pulp exported in 1909 was \$13.97 for the mechanical and \$38.99 for chemical pulp. The average price for all the pulpwood exported was \$17.45 per ton. The prices

from Canada. Excepting a slight increase in the export of mechanical pulp to the United Kingdom, the entire increase in the export of pulp for 1909 is due to the United States demand. The United States took 63.8 per cent. of the mechanical pulp and 95.7 per cent. of the chemical pulp exported from Canada in 1909. There was a decrease of 86 per cent. in shipment of chemical pulp to the United Kingdom for 1909. The shipment of all pulp to other countries also showed a decrease as compared with 1909.

Table 4.—Summary of Pulpwood Consumption: Pulp produced and Quantity, Total Cost and Average Cost of Wood used by Processes, Species and Provinces.

	Total.	Quebec.	Ontario.	New Brunswick..	Nova Scotia.	British Columbia.
Number of Mills .....	50	25	10	7	6	2
Pulp Produced—						
Aggregate .....	445,408	238,286	132,491	40,991	23,996	644
Mechanical .....	325,609	198,576	84,286	18,751	23,996	....
Sulphite .....	114,926	37,321	47,765	29,240	....	600
Soda .....	4,873	2,389	440	2,000	....	44
Wood Used—						
Aggregate .....	622,129	319,935	187,352	88,450	25,076	1,316
Aggregate .....	\$ 3,464,080.00	\$ 1,866,700.00	\$ 1,070,740.00	\$ 414,680.00	\$ 101,945.00	\$ 10,000.00
Average .....	5.57	5.83	5.72	4.69	4.07	7.44
Spruce—						
Total .....	516,030	230,584	174,461	86,450	23,335	1,200
Total .....	\$ 2,703,318.00	\$ 1,203,748.00	\$ 902,341.00	\$ 402,680.00	\$ 94,940.00	\$ 9,600.00
Average .....	5.41	5.61	5.69	4.66	4.07	8.00
Mechanical .....	299,977	163,897	94,100	17,745	23,335	....
Sulphite .....	299,728	63,462	80,361	64,705	....	1,200
Soda .....	7,225	3,225	....	4,000	....	....
Balsam—						
Total .....	100,095	84,651	11,791	2,000	1,653	....



Total .....	Cost.	\$	637,065.00	\$	546,796.00	\$	71,524.00	\$	12,000.00	\$	6,745.00	....
Average .....	"		6.26		6.46		6.07		6.00		4.08	....
Mechanical ..	Cords.		81,401		73,454		4,204		2,000		1,653	....
Sulphite .....	"		18,604		11,197		7,497		....		....	....
Soda .....	"		....		....		....		....		....	....

Poplar—

Total .....	Cords.		5,188		4,000		1,100		....		88	....
Total .....	Cost.	\$	30,135.00	\$	23,000.00	\$	6,875.00	\$	....	\$	260.00	....
Average .....	"		5.81		5.75		6.25		....		2.84	....
Mechanical ..	Cords.		88		....		....		....		88	....
Sulphite .....	"		3,000		3,000		....		....		....	....
Soda .....	"		2,100		1,000		1,100		....		....	....

Hemlock—

Total .....	Cords.		700		700		....		....		....	....
Total .....	Cost.	\$	3,156.00	\$	3,156.00		....		....		....	....
Average .....	"		4.51		4.51		....		....		....	....
Mechanical ..	Cords.		....		....		....		....		....	....
Sulphite .....	"		....		....		....		....		....	....
Soda .....	"		700		700		....		....		....	....

Others—

Total .....	Cords.		116		....		....		....		....	116
Total .....	Cost.	\$	406.00		....		....		....	\$	406.00	....
Average .....	"		3.50		....		....		....		....	3.50
Mechanical ..	Cords.		....		....		....		....		....	....
Sulphite .....	"		....		....		....		....		....	....
Soda .....	"		116		....		....		....		....	116

During the seven fiscal years, 1902 to 1908 inclusive, the United States imported 776,289 tons of wood pulp from Canada; this was 70.3 per cent. of the total wood pulp imports of that country for that period.

The pulp manufacturing industry has developed rapidly during the past decade. The value of the exports of pulp for the fiscal year 1899 was \$1,274,376. The value of the exports for the fiscal year 1909 was \$4,306,929. This represents an increase in ten years of about 238 per cent. The indications are that the development will be even more rapid in the immediate future.

The exports of pulpwood are relatively larger than those of manufactured pulp. All the pulpwood goes to the United States where it annually supplies 20 per cent. or more of the quantity yearly consumed.

Table 6 gives a detailed statement of the relative quantities of pulpwood manufactured in Canada and exported.

Quebec; the average price received was only 45 cents per cord more than was paid by Quebec mills.

The wood exported from Canada was manufactured into 340,615 tons of mechanical pulp and 287,514 tons of chemical pulp. Forest Products Bulletin No. 10 issued by the United States Census Bureau shows that on the average in the United States a cord of wood produces about one ton of mechanical pulp or one-half ton of chemical pulp, and that 37.2 per cent. of the wood imported is manufactured into mechanical pulp, 62.8 per cent. into chemical pulp.

As the United States imports much more pulp than it exports, it would necessarily have imported this pulp from Canada had it not imported the wood. Exporting the wood to the United States brought in \$5,752,659. Exporting the pulp which that wood made would have brought, at the average prices paid by the United States importers in 1909, \$16,719,418. If the

Table 6.—Quantity and Value of Pulpwood Domestically Manufactured and Exported Raw in 1908 and 1909.

	1908.			1909.		
	Quantity. Cords.	Value. \$	%	Quantity. Cords.	Value. \$	%
Pulpwood produced in Canada.	1,378,186	7,830,450	100	1,537,762	9,216,739	100
Domestically manufactured...	482,777	2,931,625	0.35	622,129	3,464,080	40.5
Exported in raw state . . . . .	895,409	4,898,825	0.65	915,633	5,752,659	59.5

<sup>1</sup>All pulpwood exported since 1902 has gone to United States.

It is noticeable that more wood is exported than is manufactured at home. The figures for the quantity of wood domestically manufactured are more nearly correct for 1909 than those for 1908. In 1909 three-fifths of the pulpwood cut in Canada was shipped to the United States for manufacture. The consideration received for this 915,633 cords of wood was \$5,752,659, or \$6.28 per cord. This is an average value at the point of shipment of 71 cents per cord more than was paid by Canadian mills. Nearly all this wood went from

manufacture were completed and the pulp made into paper in its final form before exporting, the difference would be still greater.

The pulpwood shipped from Canada in 1909 furnished 46.4 per cent. of the raw material used by the 90 pulp mills of New York State, 10.3 per cent. of the raw material manufactured in the 62 pulp mills of New England, Maine, Massachusetts, New Hampshire and Vermont, and 6.1 per cent. of the raw material used by the 16 pulp mills of Pennsylvania. A larger quantity of pulp-

wood was exported in 1909 than in 1908.

The manufacture of the 915,633 cords of wood exported in 1909 kept running at full capacity for the year 69 of the 251 pulp mills in the United States. If this pulpwood had been reduced to pulp in Canada, it would have supplied for the year 73 pulp mills of the average size of those already in Canada. The greater part of the pulpwood exported was cut in Quebec; if it had been manufactured in Quebec it would have kept running 71 mills of the same size as those now existing in Quebec.



### REFORESTING.

The Forest, Game and Fish Commission of the State of New York has issued an instructive pamphlet by C. R. Pettis, Superintendent of State forests, referring to successful reforestation with several species of evergreens and hardwoods, from which we take the following extracts:—

Reforestation or establishing of forests on lands formerly under forest cover may be secured either by nature from wind sown seeds, or by man planting small trees or sowing seeds. Nature is so slow and erratic that she cannot be depended upon. Experience in planting trees and sowing seeds in the field under varying conditions clearly indicates that planting is a successful method, while broadcast seed sowing is too expensive and uncertain to be used generally. Some trees are quite exacting in regard to necessary fertility. The pines are best adapted to light sandy soils, with but little fertility, while the spruce, yellow poplar and catalpa require good soils.

The amount of moisture required by trees depends upon their root system. Such trees as the Scotch, Austrian and red pines, also black locust and red oak, make satisfactory growths upon dry soils, because their long tap roots are able to take up moisture from the lower

sub-soil. No trees require or can make a satisfactory growth in cold soils thoroughly saturated with water, as air in the soil is necessary.

All trees in order to make a profitable growth require light. Some kinds, such as spruce, have the ability to withstand shade, and it is beneficial to nearly all of them when they are small. In order to secure the most satisfactory growth a tree must have its light requirements satisfied.

A plantation of Norway spruce, made on the Billings Estate at Woodstock, Vt., shows a large profit, says the bulletin. The trees were set 8 feet apart each way, requiring 680 trees per acre. The soil was poor, sandy hillside. In 1908, or thirty-two years after planting the three year old transplants, four trees were cut. Their measurements were as follows:

- No. 1—72 feet high, 11 inch butt cut, 46½ feet of logs, 6 inches at top end.
- No. 2—57 feet high, 15 inch butt cut, 47½ feet of logs, 6 inches at top end.
- No. 3—63 feet high, 14 inch butt cut, 42 feet of logs, 6 inches at top end.
- No. 4—67 feet high, 16 inch butt cut, 40 feet of logs, 6 inches at top end.

A careful examination of the plantation shows that it has on the average produced about one and one-half cords per acre per year, which is certainly an excellent return on the money invested.

The cut of pulp wood was sold to the International Paper Company, and made into paper at the Bellows Falls mill. Edward Barrett, superintendent of this mill, reports as follows: "The Norway spruce test resulted as follows: One cord of rough wood, seventy-one sticks 4 feet long, after preparing for grinder room, gave us 98 cubic feet. This made 1,828 pounds of dry wood pulp. The spruce worked nicely on the paper machine, and under the same conditions as our regular spruce gave us a higher test for strength and a brighter shade with the same amount of color."

### WEAR ON THE WIRE.

The chief cause of the wear of the Fourdrinier wire is its slipping over stationary surfaces such as the tops of suction boxes. A smaller factor is the friction against the various rollers, such as breast rolls and register rolls. All this friction wears down the wires of which the wire-cloth consists, especially those running lengthways in the machine. Although this wear is chiefly on the under or inner side of the wire, the upper side, which receives the pulp, is also worn in the same way, but to a less degree. This wear is, of course, due to friction under the couch and other rolls which come into contact with the upper surface of the wire. Hence the chief wear comes on what may be called the warp of the wire, and once that gives way the cross-wires soon go. It must not be forgotten that the power for turning the rollers is derived by friction from the wire itself. Doctors improperly placed are another source of wire-wear by needlessly increasing the friction between roll and wire. Badly designed or badly lubricated bearings are yet another cause of too rapid deterioration of the wire. When the breast roll does not turn freely with the motion of the wire the fault lies usually with the doctor. In old-fashioned machines—where the breast roll, the doctor and the sieve-watertrough form a single unit—it often happens that the trough is squeezed on to the breast roll like a brake. The result is a severe longitudinal tension of the wire, and this, if the warp wires are already half-worn through, may break the wire up. The remedy is to keep the rubbing surface of the doctor within proper limits.

To lessen friction between the wire and other things with which it comes into contact certain precautions must be taken. As regards the suction boxes, their tops should always be covered with hard wood, or, still better, with leather. These tops do not wear the wire as a bare metal surface does, and are easily fixed so as to be renewable when neces-

sary. The rubbing surface should also be as small as possible; it is often unnecessarily large.

Another and very important point is to keep all the surfaces, whether tops of suction boxes or of register rolls, over which the under-side of the wire has to pass, accurately at the same horizontal level, for any difference will cause increased friction on any surface higher than the others. Yet another point is to see that all rollers worked by the motion of the wire run as freely as good bearings and careful lubrication will permit. A jet of water should be provided to rinse the doctors from time to time.

Any cause that may prevent the wire from running absolutely flat must be carefully guarded against. Even a lump that has escaped the strainer may cause a bending down of the wire, whereby its friction against everything under it is greatly increased, of course.



### SOME QUESTIONS FOR PRACTICAL PAPER MAKERS.

A correspondent of the Pulp and Paper Magazine asks the following questions to which he would like to have answers and opinions. Readers are invited to send in their views to the Editor:—

(A) Is a non-conducting covering ever used on digesters in paper mills, and if not what is the reason that this method of saving heat and therefore economizing in coal is not employed?

(B) Is there any reason why the ends of the drying cylinders on a paper machine should not be covered with non-conducting material?

(C) Is there any objection to the use of superheated steam in paper mill work?



An English syndicate is said to have cruisers going over the Booth timber limits in Quebec Province with the view, it is understood, to making a deal.



## HINTS FOR CONCRETE FLOORS IN MILLS.

Albert Moyer, Assoc. Am. Soc. C.E. and Manager of Sales Department, Vulcanite Portland Cement Co., gives the following suggestions for the prevention of "dusting," or easy abrasion of improperly laid concrete floors:—

Cement floors, particularly in office buildings or warehouses, which do not have the advantage of obtaining the necessary moisture from the atmosphere such as outside floors and sidewalks on which the dew falls at night, if not properly protected and kept damp, become prematurely dry and are therefore more or less porous and weak, causing easy abrasion under foot traffic, or what is commonly known as dusting.

Care should be exercised in keeping such floors damp by covering with wet sand, wet hay or straw, for a week or more until the floor has properly hardened. If this has not been done and the floors are found to dust under foot traffic, the following remedy will be found very easy to accomplish, economical and effective.

Wash the floor thoroughly with clean water, scrubbing with a stiff broom or scrubbing brush, removing all dirt and loose particles. Allow the surface to dry, as soon as dry apply a solution of one part water-glass (sodium silicate) of 40° Baume, and 3 to 4 parts of water, the proportion of water depending upon the porosity of the concrete. The denser the concrete the weaker the solution required. Stir well, and apply this mixture with a brush, (a large white-wash brush with long handle will be found the most economical). Do not mix a greater quantity than you can use in an hour.

If this solution is sufficiently thin, it will penetrate the pores of the concrete. Allow the concrete surface thus treated to dry. As soon as dry, wash off with clean water using a mop. Again allow

surface to dry and apply the solution as before. Allow to dry and again wash off with clean water, using a mop. As soon as the surface is again dry, apply the solution as before. If the third coat does not flush to the surface apply another coat as above.

The sodium silicate which remains on the surface, not having come in contact with the other alkalies in the concrete, is readily soluble in water and can therefore be easily washed off, thus evening up the color and texture of the floor. That which has penetrated into the pores, having come in contact with the other alkalies in the concrete, has formed into an insoluble and very hard material, hardening the surface, preventing dusting and adding materially to the wearing value of the floor.



An order has been issued by the Courts appointing W. B. Snowball, Chatham, and A. H. Hanington, K.C., St. John, permanent liquidators in the winding up of the Miramichi Pulp Company, Chatham. The liquidators were ordered to give bonds for \$10,000 each and also sureties for an additional \$10,000. The provisional liquidator, W. B. Snowball, presented a report which showed the company has liabilities amounting to \$296,463 and assets of \$334,661, leaving a balance of \$38,197.85, not including the claim of the Nashua River Paper Company for \$374,794. George T. Keyes, who owned a large amount of stock, also is interested in the Nashua River Paper Company, for which company the Miramichi mill provided the pulp. The largest creditors, other than the Nashua River Paper Company, are the Bank of Montreal, with \$112,800 in bonds as well as another claim amounting to \$101,088.93. The claim of employees for wages amounts to \$8,100, which was ordered to be paid by the liquidators. J. B. Snowball Company's claim amounts to about \$5,000.

**PAPER STOCK MARKET.**

—  
Montreal, March 13, 1911.

No great change has taken place in the price of paper-making materials. There is a fair inquiry for the best qualities of new cotton cuttings, and No. 1 shirt cuttings, corset cuttings and shoe clips are bringing better prices. Old cotton rags are without change. Roofing stock is in fair demand.

Good qualities of waste paper move easily, but the cheaper kinds and common waste are being offered at somewhat low prices.

Following are the current quotations:

Shirt Cuttings—	Per 100 lbs.
White .....	\$5 00 to \$5 25
Unbleached Cottons ..	4 25 to 4 75
Light Print Cuttings..	3 75 to 3 75
Shoe Rag Cuttings—	
Bleached .....	3 75 to 4 25
Mixed white ..	3 00 to 3 25
Light print ..	2 75 to 3 00
Overl Cuttings—	
Blue .....	3 00 to 3 25
Brown ..	2 00 to 2 50
Paper Shavings—	
Hard white .....	2 00 to 2 25
Soft No. 1 white.....	1 50 to 1 75
Soft No. 2 white.....	1 25 to 1 30
Mixed shavings .....	0 55 to 0 60
Ledger stock ..	1 00 to 1 25
Printed book ..	0 90 to 1 00
Common waste ..	0 25 to 0 35
Roofing Stock—	
No. 1 satinettes ..	0 75 to 0 80
No. 2 satinettes ..	0 45 to 0 50
Sundries—	
Old bagging ..	0 60 to 0 65
Manilla rope .....	2 00 to 2 25

**CENTRIFUGAL PULP-SORTING.**

—  
The object of this is to treat the half-stuff in such a way that only that part of it which really requires refining is sent to the finishing engine. Half-stuff is always a mixture of wood-fibre already ground sufficiently and fibre that requires refining. If, then, it goes to the finishing engine unsorted there

is sure to be much loss of over-ground stuff, which goes away in dust in the water. Having convinced ourselves, therefore, that sorting is indispensable, we are confronted with the necessity of choosing between centrifugals with a vertical axis and centrifugals with a horizontal axis. The former have the advantage that the basket, especially if it is wider below than above, is far less liable to get stopped up than with the horizontal form. The already refined stuff is driven through the basket at once, while the coarser stuff falls down by its own weight, and has no chance of clinging to the basket. It is true that the meshes may sometimes get choked by resinous pulp, but the use of such pulp is exceptional. The upright centrifugal is also the easier to empty for the supply of the refining engine. It is here supposed that a strainer has been used to catch actual splinters of wood and knots of pulp. Without such a preliminary sorting no form of centrifugal can be expected to work properly. Such a strainer prevents all risks of having the outlet pipes of the centrifugal stopped up, and also restricts the work of the centrifugal to its legitimate function, which is to separate out half-stuff and not to get rid of small logs and chunks of felted fibre. A strainer is even more necessary with a centrifugal having a horizontal axis, for, although the upper half of the basket remains fairly clear, as the stuff continually falls away from it by gravitation, the lower part of the basket, on the other hand, is always closely covered, and very likely to get choked whatever kind of wood pulp is under treatment. Water spurted in has no good effect, for, like the water in the stuff itself, it is thrown through the upper half of the basket by the rotation of the vanes.

It is clear that the vertical centrifugal has a full advantage over the horizontal type. It must be admitted that the gearing costs a little more with the horizontal form, but that is an absolute trifle in comparison with other considerations.

# The Pulp <sup>AND</sup> Paper Magazine of Canada

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Vol. 9—No. 4.

TORONTO, APRIL, 1911

1 Canada \$1 a Year  
1 Single Copy 10c.

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## Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

**Subscriptions:** Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage, \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required, four days earlier. Cuts should be sent by mail, not by express.

**BIGGAR-WILSON, Ltd.**

**PUBLISHERS.**

**Offices, Confederation Life Building,  
Toronto, Canada.**

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### RECIPROCITY.

#### **The Treaty of 1854-66—How it was Negotiated and Why it was Annulled.**

(Continued).

Discussing the report of Mr. Taylor to the United States Government on the tariff changes in Canada, the authors say: "The specific conclusion drawn from this comparison was that our (United States) average ad valorem duties under the Act of 1857 amounted to about 21 per cent., while under the Canadian Act of 1858 they were only 16 per cent. This situation gave a ridiculous appearance to the demand that Canada should restore the

rate of duties which existed when the reciprocity treaty was ratified, upon penalty of abrogation. The demand bordered on arrogance, said Mr. Taylor, in view of the fact that the duties imposed under the tariff of 1857 were at least 25 per cent. higher than the corresponding rates of the Canadian tariff. . . . It seemed clear that the increase in duties was absolutely demanded by the revenue needs of the Canadian Government. The Act of 1858 was a revenue measure, and imposed heavy duties upon articles like tea and coffee which were likely to be productive sources of income. It is hard, in view of these facts, to account fully for the loud clamor on the part of our manufacturers against the discrimination which they supposed themselves to be either subjected to, or about to suffer from, in Canadian markets. In part, this was due to that general prejudice against Canada which sought its arguments even where they did not exist."

While these accusations were made against the Canadian Government by commercial and manufacturing interests of the United States opposed to the competition of British American products, it is evident that political and economic influences were at work which would have ended the treaty, even if no change had been made in the tariff of the two Canadian provinces. There was only

one condition under which the treaty would have been perpetuated, and this was complete union with the American States; but financial consideration alone would, at this stage, have made this unacceptable to the provinces, which would have been compelled to pay through the tariff a share of taxes arising from a costly war in which they had no concern.

#### Minor Influences.

But before explaining the effect of the war on the reciprocity treaty it may be well to refer to some of the minor causes of abrogation. Partly from the tariff increases and partly from a growing appreciation of the products of Canadian industry the export of Canadian manufactured articles to the United States began to increase, that increase being from \$234,234 in 1858 to \$375,201 in 1859. One of the reports to the government at Washington States: "Many manufacturing establishments on our side [referring more particularly to the New York frontier] dismissed their workmen and were closed, and many were removed to Canada in order to avoid the payment of duty on their productions. It can create no surprise that much indignation was excited, without exception, in all those cities on the Canadian frontier which are daily and hourly witnesses of the one-sided nature of our dealings with Canada in the products of American labor\* \* \* \* \* Many of the citizens of Buffalo and Rochester have been compelled by the Canadian tariffs to leave their homes and remove their families to Canada." Resolutions and memorials of boards of trade in the towns of Upper Canada are then cited to show that the blame for this was not due to the people of the upper province, but to

Lower Canada, which province sought to divert the trade of the West to Montreal and Quebec from New York and Boston.

#### The Transportation Influence.

But these pretexts were the levers by which a more powerful influence against the treaty was brought to bear upon Washington. During the life of the treaty the American West was rapidly filling up with settlers, who were grain and stock-raisers—as now in the Canadian North-West—and the railway, canal and shipping systems of New York and other States were taking in tolls "all the traffic would bear." There were times when the cost of getting grain to the seaboard exceeded the price which the Western farmer himself received at the first point of shipment. If these transportation interests could eliminate the competition of the Grand Trunk and the St. Lawrence canals they would hold the traffic of the Western States in the hollow of their hand. The Western farmers and merchants had been protesting against the excessive charges for transportation, and, at a great convention of Chambers of Commerce at Detroit in 1865, the owners of elevators and warehouses at Buffalo were denounced as extortionists, who exacted charges sufficient to pay profits equal in a single year to the whole value of the property. Hatch and Taylor, the two commissioners who reported in 1860 on the operation of the treaty, presented separate statements, the former against the continuance of the treaty, and the latter in its favor. Mr. Taylor, in his report, conceded the immense service to the United States rendered by the reciprocity treaty in removing the dangers latent in the fish-



eries convention of 1818. He quoted from a speech by Lord Elgin, in which that statesman said: "A British admiral and an American commodore were sailing on the coast with instructions founded on opposite conclusions, and a single indiscreet act on the part of one or the other would have brought on a conflict involving all the horrors of war." He then takes up the commercial aspects of the treaty, and shows that the exports of the United States to the provinces have each year exceeded those of Canada to the United States, and as to the increases in the Canadian tariff he asks: "What right have we to demand that the provinces should encourage importations from the United States when our legislation of 1846 imposed duties as high as 30 per cent., and the Act of 1857 only reduced their average to 24 per cent. on Canadian manufactures? Canada needs revenue; the public lands, as with us, have ceased to yield any considerable revenue, and it became a necessity to increase the tariff. In doing so how can we assert that Canada 'has acted in bad faith to the United States and violated the spirit of the reciprocity treaty,' to repeat the current complaints of the New York journals?" Mr. Taylor then compares the tariffs in detail, and shows how, even after the downward general revision of 1857, the United States tariff was still higher than that of Canada and contained fewer items on the free list. He points out further that, notwithstanding the outcry as to the Canadian tariff, the exports of manufactured goods from the United States to Canada increased from \$2,560,413 in 1858 to \$3,140,275 in 1859; while the exports of Canadian manufactured goods to the United States made a total of only \$234,234 in 1858 and \$375,201 in 1859.

He concludes by the following statement: "The late attack on that policy (reciprocity) can be traced exclusively to one quarter, the shipping interest of New York and Philadelphia and the lines of transportation between those cities and the West. Pennsylvania as a State cannot share the sentiment, for coal and iron, with the manufacture of the latter, are prominent exports to Canada; while the other manufacturing interest, both of Pennsylvania and New York, gain largely from the consumption of their products in the provinces. But the importing and railroad interests of the two States are apprehensive of the competition of the Grand Trunk Railway and the navigation of the St. Lawrence; and the north-western, and even the Mississippi States, must be forced, by the abrogation of reciprocal trade and navigation, to pursue exclusively certain channels of communication. It is not possible that the Government of the United States can be induced to yield to such an appeal."

Mr. Taylor appears to have been only partially correct as to the opinion of the importing interest of New York, for the Chamber of Commerce of New York city, in 1865, adopted the report of its "select committee," in which the most forcible plea yet made was presented in favor of the continuance of the treaty, and that body has remained to this day a constant advocate of reciprocity between the two countries, for the good reason that its merchants and importers knew the policy was making New York the chief purchasing centre of Canadian merchandize.

#### Death of the Treaty.

That Mr. Taylor had correctly estimated the aim of the transportation interests of New York to be a greater hold

on the traffic of the West appeared two years later in a set of resolutions of the New York State Legislature, declaring that Canada was violating the spirit of the treaty. Following up these resolutions, Representative Ward, of New York, made a report on behalf of the Committee on Commerce at Washington, in which he distinctly charged that it was the avowed purpose of Canadian officials to divert American trade from its "natural transportation routes within this country," and to carry it through Canadian territory by means of special rates. Mr. Ward's report was, however, peculiar in that, while it complained of existing conditions, it argued strongly for the general principle of reciprocity, and advocated the extension and revision of the treaty.\* Mr. Ward returned to the attack on the treaty in 1864, and moved that the President be authorized to give notice of its termination unless a new convention satisfactory to both governments should be concluded. After various motions and amendments, a simple motion, adopted in the Senate by a vote of 33 to 8, was passed in the year 1865 declaring that "It is no longer for the interest of the United States to continue the same (the treaty) in force," and that notice be given of its termination. Under this notice the treaty came to an end on St. Patrick's Day, 1866.

#### Attempts at Resurrection.

A deputation consisting of A. T. Galt, Finance Minister, and W. P. Howland, Postmaster-General of Canada; A. J. Smith, Attorney-General of New Brunswick, and W. A. Henry, Attorney-General of Nova Scotia, came to Washington and remained for two weeks,

making various proposals, but in vain. A bill was, indeed, presented to Congress in March, 1866, but failed, and, even if it had gone through Congress, its terms, in the opinion of Laughlin and Willis, "were so unfair that Canada could not have dreamed of accepting them."

Many efforts on both sides of the line have been made since then to bring about a new treaty, but up to the present all have failed, and each decade has reduced the chances of a treaty of general application, such as the provinces were once willing to negotiate.

A noteworthy presentation of the case was made by Sir Edward Thornton, British Ambassador, and Hon. George Brown, representing Canada, in 1874. Taking up the assertion that the advantage of the old treaty was all on the side of Canada, Mr. Brown pointed out that the high prices of commodities in the United States caused by the war during the last years of the treaty seemed to give an advantage to Canada, but this advantage was an apparent one, and due to fictitious values. The war conditions were abnormal, and no deductions could be drawn from them. Had the treaty not been in existence at all, every ton of those goods would have gone from Canada to the United States, with only this difference, that they would have cost the consumers of the United States that much more by reason of the duties. Notwithstanding that the exports of Canada to the States were reduced in volume because of the war, the aggregate balance was still in favor of the United States, as in the thirteen years of the treaty the total imports of the provinces from the United States were \$346,180,264 and the imports of the

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\*Laughlin and Willis' "Reciprocity."

United States from the provinces were \$325,726,520. The real difference was still greater in favor of the United States, owing to the inflation of the currency, and because, also, there being no duties on the products going to the United States, there was a more common temptation to overvaluation. This was evident from the fact that the Canadian returns showed a total import from the United States of \$363,188,088 and an export thereto of \$267,612,131. He gave figures to show that the traffic in bond through United States ports had developed to the advantage of the United States railways, canals and shipping interests. The free navigation of the Canadian canals had been given during the treaty, and had been continued since to the great benefit of the United States, and the only return Canada had got from this valuable privilege was a promise to equal rights in the navigation of Lake Michigan, which promise had never been fulfilled. The repeal of the treaty had driven the Canadian provinces into confederation and had started the construction of the Intercolonial Railway, and its effect on Canadian foreign trade was notable. The exports of Canada and Newfoundland, formerly done largely through the United States, increased from \$139,000,000 in 1867 to \$235,000,000 in 1873. The lumber exports of Canada to the United States, which were threatened by the annulment of the treaty, had gone on increasing, and the effect on the wheat and flour trade was to send more of those products out by the St. Lawrence route and less by New York and Boston. E. H. Derby, reporting to the United States Government on the effects of the repeal, estimated that it cost the port of Boston

alone trade to the amount of \$27,000,000 a year.

These representations were futile, as were the subsequent approaches of various Canadian governments since Confederation.

Since some of the best minds in the United States and Canada approved of freer trade relations, and, since it was admitted that the navigation of the St. Lawrence route and the settlement of the old-standing fisheries disputes were achievements transcending in national importance the commercial advantages of the treaty, we may ask why, in the face of its apparent trade benefits, the United States cut Canada off at the risk of fresh diplomatic troubles with Great Britain?

#### National Sentiment and Tariffs.

There were two influences, one political, the other economic, either of which would have ended the treaty. The war caused the sacrifice of 500,000 lives and piled up a bill of \$5,000,000,000. The war debt had to be paid. With a Republican administration in power, and already committed to higher protection, and with a national spirit intensified by the triumph of the North, which declared the indivisibility of the Union, the nation was determined to be independent of the rest of the world as far as possible. These two influences decided the nation to pay off its war debt by a higher tariff rather than any other form of taxation, and to do this a number of commodities admitted free from Canada had now to be taxed and the tariff raised all round. The necessities of the revenue involved an advance of duties affecting Canada, just as Canada's necessities a few years before compelled

an increase of duties which furnished an excuse for the rescision of the treaty.

But the motives were mixed. The war brought an aftermath of resentment against that portion of both British and Canadian people who had sympathized with the South, and a higher tariff would not only pay off the war debt, but would hit the trade of both Canada and Great Britain. Moreover, there was a large section of the public men in the United States who, remembering the great anxiety of the provinces to secure the treaty, firmly believed that its abrogation would soon be followed by an application for unconditional entrance into the American Union. At a great convention of commercial organizations held at Detroit in 1865, to which Canadian boards of trade were invited, this belief was plainly expressed by more than one delegate. For example, Mr. Potter, then United States consul at Montreal, said: "Now, we are ready to give you in Canada the most perfect reciprocity. We will give you complete free trade, but we ask you to come and share with us the responsibilities of our own government. . . It is not the policy of our government to continue this treaty, and I believe that in two years from the abrogation of the reciprocity treaty the people of Canada themselves will apply for admission to the United States."

The strength of this feeling was noted by Charles Francis Adams, then United States Minister to Great Britain, who wrote to Secretary Seward that, in his opinion, "All these measures (for abrogation were the result rather of a strong political feeling than of any commercial considerations." "The same opinion," say Laughlin and Willis, "is entertained

by others, and this testimony is of great importance because of the claim now frequently made that the Canadian treaty was very disadvantageous to us commercially."

(Continued in next issue.)



#### BURCLARIOUS LEGISLATION.

Gradually the true character of President Taft's reciprocity scheme is dawning on the American mind. The daily press is a great force. It may sway men's passions; it may play upon men's prejudices; it may even warp men's judgment to a dangerous degree at times, but it cannot for any length of time subvert men's reasoning faculties. And the administration at Washington that seeks to evade the problem of its domestic reforms by inveigling a friendly neighbor into fiscal entanglements that are sure to create trouble and friction, where trouble and friction do not now exist, will in due time be dragged from its hiding-place. And the daily press that enters into a conspiracy to gain for itself trade advantages by legislating away the protection of some other class will sooner or later find its selfish plot exposed and condemned.

On the face of things the proposed reciprocity agreement will immensely stimulate certain branches of the Canadian pulp and paper industry, but the "Pulp and Paper Magazine" does not want to see Canadian prosperity gained by the robbery of legitimately founded interests in the same line in the United States. There is a sound old English law that makes it a crime to receive goods from another person, knowing



those goods to have been stolen: and burglaries can be committed by legislation as well as by breaking into houses.

We do not mean to imply by this that the Washington government is guilty and the Ottawa government innocent. Indeed, seeing that our government has given the Canadian grain grower special privileges by bartering away the protection of the Canadian fruit grower, market gardener and other farm industries, the Canadian negotiators are as deep in the conspiracy as the others.

If there is anything wrong with the tariff of the United States or that of Canada, let our administrators investigate it and apply the remedy, but let them not try to delude us with the fallacy that the spoliation of one class for the aggrandizement of another is tariff reform.

Let them beware how they advertise as a panacea for international troubles this quack remedy compounded of discriminations of class against class. Will international accord be promoted by handing across the line the gifts obtained by such unjust means?



### THE GOVERNMENT'S PULP AND PAPER PROBLEM.

The Toronto "Globe," probably the Government's foremost apologist—or should we say, gymnast?—in connection with the proposed Reciprocity Agreement, comes out with the following somewhat surprising statement:—

"One of the most satisfactory features of the agreement with Washington is the clear-cut statement by the Canadian Commissioners as to the pulp and paper industry. The Federal Government has taken the right course in making it

plain that, while it has to do with the framing of the tariffs, the provincial authorities must settle for themselves the vital question of unrestricted export of pulpwood."

"Clear-cut statement" is distinctly good! If any plan more palpably the result of misunderstanding of conditions joined on to a happy-go-lucky eleventh-hour decision (we only use that word because the English language seems to lack one that will adequately describe the Canadian Commissioners' Micawber-like attitude) to let a great nascent industry take care of itself as best it may, **has yet to be devised**, we have yet to hear of it. "Clear-cut," indeed!

The "Globe" continues: "By the proviso that wood pulp and paper up to the value of four cents a pound shall be admitted into the United States duty free whenever the provincial restrictions against the export of pulpwood cut from Crown lands shall have been removed, the way is left open for provincial action should that be deemed advisable."

Exactly! Just when the good effects of the restrictive action of the provinces was making itself felt in earnest, they are confronted by Federal legislation placing a premium on their undoing their good work.

And this is the "Globe," the journal which issued a special pulp and paper supplement, giving good advice to the Dominion Government on this very question only two or three years ago!

How are the mighty consistent!



The new Lincoln paper mill at Meriton, Ont., is now in operation. It is turning out bag, rope, and high grade manila papers.

## GREAT AUCTION OF FOREST ASSETS.

By STEPHEN LEACOCK.

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[The following burlesque is one of the most effective bits of writing on the reciprocity question we have seen. Mr. Leacock is professor of political economy in McGill University, and possesses the very rare combination of a gift of humor and a taste for economics. His book, "Literary Lapses," which is already out of print, may be called the first real work of Canadian humor.]

Going! going! going!

The natural resources of a nation!

Now, then, who'll buy? No reserve!

Come, gentlemen—the whole lot is for sale.

Very peculiar case this, and a grand opportunity! Fine old family estate, entailed property, left in trust for the heirs and the trustees gone suddenly insane!

Gentlemen, chances like this don't occur once in a lifetime!

Now, then—Going! going! going!

Splendid property—half a billion acres of forests. This part of the estate we give away, gentlemen! Three hundred and sixty million acres of arable land! Potential wheat crop of one billion bushels a year! Coal beds that cover provinces, water-power that could drive the industries of the world.

Going! going!

Why, gentlemen, if the trustees of this estate hadn't gone insane, it could have been developed into the leading industrial concern of the world.

Now the whole thing is to be sold and the effects removed.

What bids do I hear?

You, Mr. Taft? Step just a little nearer to the table, please, so that the gentlemen can hear over your waistcoat.

Now, gentlemen, Mr. Taft makes the first bid!

Mr. Taft offers—nothing!

Well done, sir; a most handsome offer!

Gentlemen, this offer of Mr. Taft's will entitle the heirs of the estate to sell him everything they have, provided that he is anxious to buy it. Perfect reciprocity, sirs, couldn't be completer.

Mr. Taft offers nothing!

Any other offer?

Going! going!

No, Mr. Bull; very sorry. We don't accept offers in British currency at this auction.

Going! going! Gone to Mr. W. H. Taft, all the natural resources of Canada in one lot!

### NEW BRUNSWICK PROHIBITS EXPORTATION.

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It will be remembered by our readers that over a year ago the New Brunswick Legislature, Government and Opposition members alike, passed a resolution favoring the restriction of export of pulpwood in an unmanufactured state. Now the Government is crystallizing this unanimous opinion by the introduction of legislation putting it into practical effect. Hon. Mr. Grimmer, the Surveyor-General, is introducing a bill making it obligatory on the part of spruce timber license holders to convert such timber into pulp or lumber before it can be shipped out of the country. This makes the restriction, so far as spruce is concerned, as far-reaching as in the case of Ontario's timber policy. Not only must pulpwood be converted into pulp, but large timber must be manufactured into lumber before it can be sent out of the country of its origin. In the case of Quebec, the law applies to wood cut off land even after it has been opened to settlement, and whether this applies also to New Brunswick is not yet made clear, though it is to be hoped that it will include such lands. For if every area released for settlement is removed from the embargo, it means that private lands become an increasing source of supply of pulpwood for export, and the purpose of the restrictive law becomes nullified to just that extent.

Be this as it may, New Brunswick's progressive legislation brings that province well into line with the rest of the Dominion, especially as, if as we understand correctly, British Columbia is considering immediate adoption of a similar policy. Nova Scotia's timber areas

are comparatively small, and so are those of Prince Edward Island. With New Brunswick, Quebec and Ontario forcing the home manufacture of pulpwood from Crown lands it means that the depletion of the country's natural resources is stopped to that extent, and the establishment of domestic pulp and paper mills encouraged in proportion.

When it is considered how extensive are the forests of New Brunswick and to what an unusually high degree the province depends upon that resource for its necessary revenue, the importance of the step will be more fully appreciated as will also the long-sighted patriotism and decisiveness of the statesmen responsible for the carrying out of such truly Canadian legislation.



### GREATER PROBLEMS THAN RECIPROCITY.

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It would seem that the governments of both Canada and the United States have thrown the reciprocity proposition into the arena in order to divert public attention from the graver problems at home. The people of the United States wanted tariff reform but the government gave them reciprocity. The people of the Canadian West wanted grievances remedied, but instead of dealing with the transportation question and revising the tariff, the Canadian Government offer them the gold brick of reciprocity and do not touch with their little finger the problem of reduction in the cost of transportation, which affects alike the Eastern manufacturer and merchant as well as the Western grain grower.

It is true that the Western grain raisers' deputation to Ottawa all but ignored the transportation question—ex-

cept in its relation to the Hudson Bay Railway—and concentrated their appeal on the narrow and sectional ground of the removal of the tariff on articles of their own requirements, and to this extent they are subject to the same reflection as the government in failing to see that in the things that concern them most vitally they have remained supine.

If government had effected a reduction in transportation rates they would have brought both Canadian manufacturers and Canadian farmers into harmony by reducing the cost of doing business with each other, but by evading this duty and giving the Western market to United States manufacturers and United States produce, meat and grain trusts, they sever the Canadian east from the Canadian west.

A simple illustration of this may be found in the pulp and paper trade. The freight on news print from the paper mill districts of Quebec to Winnipeg is 69 cents per hundred, but the freight on news print from the same district to corresponding places in the United States is about 30 cents, the rate to Chicago, for example, being only 18 cents. Now this means that under the reciprocity deal not a pound of eastern Canadian news print could reach Manitoba and the North-West, seeing that even now one of the Winnipeg papers gets its paper from Minnesota. The same thing applies in a more pronounced way to book papers, the freight on which to Winnipeg from Quebec points is 73 cents, while to points in Ohio it is only about 17 cents. The reciprocity arrangement means that the merchants of Chicago will do the trade with the west, and not Montreal and Toronto under such transportation conditions. The effect of the new situation may be

to bring down the rates on the Canadian roads, but the problem of legislative control of transportation would still remain unsolved, and the Canadian east will remain split away from the Canadian west. Those who control the United States corporations and trusts know this if the Canadian Government does not.



—One phase of the Reciprocity question the United States Congress has not yet realized, though it is coming up for consideration. The United States does not recognize the "favored nations" principle in any of its trade treaties; but Canada does, and no less than twelve countries besides the British colonies will be entitled to the free admission of their goods on the same terms as we allow to the United States. One of these countries is Argentina, a large producer of wool, grain, cattle and other products, which can surpass both Canada and the United States in the cheap production of some of these commodities. We know how Germany, France and other European countries have shipped goods into Great Britain and have had them re-exported to Canada as of British origin under the British preferential tariff. Who can tell Argentina wheat or cattle from Canadian if imported into Canada and passed into third or fourth hands and then reshipped to the States? Or who can tell Norwegian or Swedish pulp from the Canadian article if shipped in the same way? It has been found impossible to prevent the evasion of the British preferential tariff by exporters of other countries, and we fail to see how the United States can prevent wholesale evasions of the Canadian agreement.



—One of the strongest illusions arising out of Mr. Fielding's reciprocity excursion is the phantasy nourished by some minds that the proposed trade agreement is a sort of bond to guarantee the peace of Canada and the United States. Is it not a fact that during the old reciprocity treaty there were continual charges by the various commercial interests affected that the other side was not playing the game fairly, that there were three government enquiries during the twelve years of the treaty, and that both countries realized that the thing could not last unless there was complete commercial union or both commercial and political union? The chief objection made by this journal to the trade entanglement is not that it can be predicted so definitely that one side will gain more trade than the other, but that, if carried out, it will certainly and inevitably lead to political trouble.



#### ONTARIO'S FOREST RESOURCES.

United States Consular agent, E. C. Wakefield, of North Bay, writes a report to his government upon the regulations affecting timber which have been in force since Confederation in the Province of Ontario. Coming to the present day he gives the following estimates:—

Timber on unlicensed territory includes the following forest reserves: Temagami, 5,900 square miles; Mississauga, 3,000 square miles; Nipigon, 7,300 square miles; Thunder Cape, 80 square miles, a total of 16,280 square miles. The Temagami Reserve contains pine timber estimated at 3,000,000,000 to 4,000,000,000 feet board measure, with a large percentage of first class quality. This lumber will go partly down the Ottawa waters and partly down the Sturgeon River to

Georgian Bay. North of the Temagami Reserve there are blocks of pine, but no large areas, containing approximately 250,000,000 feet. South of Temagami there is high grade white pine tributary to the Sturgeon River amounting to some 2,000,000,000 feet board measure. The region north and west of Temagami toward Port Arthur has pine estimated at nearly the same figure. The Nipigon Forest Reserve has a considerable body of pine, notably up the Gull River. Thunder Cape Reserve is only 80 miles in extent. On the Mississauga River, which flows into Georgian Bay, a forest reserve has been created with an area of 3,000 square miles, containing pine estimated at 3,000,000,000 to 4,000,000,000 feet board measure. Outside of this reserve, or territory tributary to streams emptying into Lakes Huron and Superior and also to the Algoma Central Railway, there are areas of red and white pine approximating 750,000,000 feet. In the Thunder Bay and Rainy River districts, west of Port Arthur, there are 2,500,000,000 feet of pine.

On waters flowing toward Hudson Bay is a great growth of spruce timber, becoming smaller in diameter toward the north. The best spruce area on this slope contains an estimated 250,000,000 cords of pulp wood, the best quality and size being found on territory between the Ogoke and Kenogami rivers. These pulp wood trees cover parts of the districts of Nipissing, Sudbury, Algoma and Thunder Bay. West of Port Arthur, on waters flowing north, there is thought to be 50,000,000 cords of pulp wood. The Transcontinental Railway is being constructed through this pulp area, and certain sections of the road are already in operation.

In all probability less lumber will be sawed during the 1911 season than in 1910, because of the fact that fewer logs than usual wintered at the mills on Georgian Bay and Lake Huron, and these mills will therefore get a later start through awaiting the new cut.

### AMERICAN PAPER AND PULP ASSOCIATION CIRCULAR.

The table herewith shows the quantity of paper and pulp manufactured in the United States, the present duty, and the proposed reciprocal (?) rate with Canada. These figures show the magnitude of the business in the United States.

Grade.	Paragraph Tariff Act.	Yearly tonnage U.S. mills.
News .....	409	1,335,321
Writing .....	413	
(% of total U.S. tonnage at 4c. per lb. or less.)		
Book .....	400	786,163
Tissue .....	410	102,539
Wrapping .....		1,020,914
Board .....	420	1,190,214
Specialties .....	409	36,339
Building and sheathing .....	407	368,903
Ground wood .....	406	2,008,680
Sulphite (unbleach- ed) .....	406	1,204,894
Soda pulp .....	406	417,387

The figures presented below show the advantage to a Canadian manufacturer making a certain grade of paper affected by this treaty on a production of one hundred tons per day.

This difference in cost, to the benefit of the Canadian manufacturer, is outside of the considerable number of small items, which in the aggregate is a large sum, and is over and above the difference in cost of labor, wood, taxation, etc., which is lower in Canada than in the United States.

Duty into  
Canada.

English china clay .....	Free
Bleaching powder .....	Free
Alum .....	Free
Copper wire, cloth .....	17½ %
Aniline dyes .....	Free
Ultramarine colors .....	Free
Paper makers' feltings and jacket- ings .....	30 %

### PERSONAL

W. H. Wiles, who has had an experience of forty-five years in paper mills in Great Britain and Italy, has arrived in Canada, and has been appointed foreman of a department in the New Brunswick Pulp and Paper Co.'s mills at Millerton. On the steamer "Hesperian" coming out, Mr. Wiles, to amuse the passengers, made a small quantity of paper containing a sketch of the ship as a water mark. A small hand-mold had been made for him by L. J. Marshall & Co., of London, and with a dozen pieces of flannel a foot square and a gallon or two of pulp he completed the plant by borrowing from the steward a footbath, a bucket, and a quart pot. A trouble quite novel to a paper maker arose when he attempted to produce a sheet, for the sea was rough and the tossing of the ship prevented him from obtaining a proper "shake" to get an even sheet. Practice and perseverance overcame this trouble, but the next difficulty was in getting the sheets pressed. He and the ship's printer rigged up a press by piecing two boards together and putting the wad of felts and sheets between the boards. A piece of "quartering" from the ship's upper floor and the wedges driven over the board and against the ship's frame made the press. After an hour in the press the sheets were taken out and dried and "calendered" with a soda water bottle, and the sheets were ready for printing in about twelve hours. The paper was used for printing the menu cards and for souvenirs. This is perhaps the first paper ever manufactured on a ship. A sample sheet is to be seen at the office of the "Pulp and Paper Magazine."



The British-Canadian Lumber Corporation has been organized at Vancouver for the purpose of developing its large timber tracts. A pulp mill may be erected in the Masset district, near Prince Rupert.

## THE CONTROL OF DRYING.

By R. W. Sindall.

It is somewhat surprising in these modern days, when almost every operation of paper making is subjected to some form of control or test, to find that the conditions of drying paper by exposure to heated air are not carefully watched, except in a few cases, says R. W. Sindall, F.C.S., in the Paper Makers' Monthly Journal.

This may be largely traced to the fact that the cost of drying is not easily arrived at owing to the methods adopted for heating the drying room. Usually steam pipes are supplied in the chamber, of some arbitrary size and length, and the steam itself is drawn off from the mains direct, so that the measurement of heat used in terms of coal consumption is frequently out of the question, or regarded as of little importance.

The problem of control is centred in the question—what is the cost of drying a ton of paper by heated air? This operation involves the use of steam pipes for heating purposes, and a definite amount of steam, the production of which means a definite weight of coal. It is occasionally argued that when plenty of exhaust steam is available the subject of economy in steam is of no interest. Of course, the answer to that suggestion is obvious, for it is seldom that waste steam exists in such quantity, and even should such be the case it is equally important to utilize exhaust steam in an efficient and intelligent manner.

The fundamental principles of air drying are of considerable interest, and a proper appreciation of the laws governing the application of heated air in this process is really essential.

Our present purpose, however, is merely to show that there are simple appliances and simple methods of calculation which may be used in the

control of the drying room as a means of ascertaining the efficiency and cost of the process.

The apparatus necessary consists of two instruments: the first being an anemometer or some form of meter for measuring the quantity of air entering the drying chamber per hour, or day, as the case may be; the second being a hygrometer for measuring the degree of dryness of the air. This latter appliance is well known, and consists of two thermometers, the dry and wet bulb thermometers respectively, so called from the fact that the bulb of one of the instruments is kept moist by water suitably supplied to it.

The power of air to take up moisture from damp paper is enormously increased by heating it. A very slight increase of temperature produces a great efficiency in evaporative power. This is shown in the following table, which indicates the weight of vapor which 1 pound of air at various temperatures is capable of retaining:—

Temp. Fahrenheit.	Lbs. of vapor.
32°	.00379
42°	.00561
52°	.00819
62°	.01179
82°	.02361
102°	.04547
122°	.08584
142°	.16170
162°	.31713
182°	.71300
202°	2.80230

The ratio of increase in drying capacity is far greater than the rise of temperature. Thus with air at 52° Fahr. the amount of moisture in 1 pound of air is .00819 pound. If the temperature be doubled, say to 102° Fahr., the amount of moisture capable of retention is increased six times to .04547 pound, while with the temperature four times higher, viz., 202° Fahr., the ca-

capacity for moisture is three hundred and fifty times greater, viz., 2.80 pounds.

The condition of the air at any stage is capable of accurate measurement and control. By means of the hygrometer, the state of the air entering the chamber can be determined, and its degree of saturation ascertained.

With the same instrument the air leaving the chamber can be examined, and the effective work of the heated air measured. The greatest efficiency obtains when the air is not discharged until almost saturated at the temperature of discharge. Naturally, the cost of drying should be lower when the air, for example, leaving at 102° Fahr. contains 90 per cent. of the amount required to saturate it than if it is discharged when the relative saturation is only 70 per cent.

Thus:—

At 102° Fahr. 1 pound of air can retain .04547 pound water if fully saturated.

At 102° Fahr. 1 pound of air only contains .0409 pound vapor if relative saturation is 90 per cent.

At 102° Fahr. 1 pound of air contains .0138 pound of vapor if relative saturation is 70 per cent.

The extent to which it becomes possible to more completely saturate the air before discharge is entirely dependent on the size of the room, the effective arrangement of the steam pipes, and the method of controlling the direction of the air currents, to say nothing of the amount of paper which must be put through. It is hardly feasible to insist that economy is only achieved by aiming at complete saturation before discharge. The problem is at once complicated by questions of initial cost, upkeep, repairs, interest and standing charges, all of which, if slightly increased, would counterbalance any advantages derived from attempting to follow an apparent counsel of perfection.

## NEW CONTRACT FOR WOOD PULP.

—

The new selling contract of the Association of American Wood Pulp Importers has been finally adopted. It unifies the system which has been practically in force for some time past. The leading pulp importers are members of this association, so the majority of the paper manufacturers using foreign pulps will be subject to the terms of the new contract when buying goods.

The chief conditions of the new contract are:—

**Weight.**—In all instances where the word “tons” occurs, it is understood to refer to gross tons of 2,240 pounds air dry weight.

**Moisture.**—All pulp to be billed on air dry weight, and the term “air dry” shall mean 90 per cent. absolutely dry pulp and 10 per cent. of atmospheric moisture.

**Tests.**—In cases of disputes arising regarding the air dry contents of the pulp, same to be re-tested at port of arrival or at the mill of the consumer by a recognized chemist of good standing according to the custom of the trade, and his report is to be final and to be made the basis of settlement.

**Disputes.**—All disputes as to quality or delivery regarding this contract (with the exception of moisture, which is provided for under clauses 2 and 3) shall be settled by arbitration.

Each shipment under this contract to be considered as a separate contract, and default on one or more shipments not to invalidate the rest of the contract.

This contract is based upon the rate of duty existing at the time of signing same, and in case of any change the buyer to have the benefit of any reduction made and to pay any increase.

**Time Limit.**—All claims of whatever nature must be made in writing within fifteen days after the delivery of the shipment at consumer's mill, wharf or station, and no claims made after that period shall be recognized.



**Breach of Contract.**—Pulp not taken during the currency of this contract as herein specified cannot be afterward claimed, but may be sold for buyer's account by the seller. On the other hand, failure of the seller to make delivery entitles the buyer after due notice to purchase against the seller for his account, except as otherwise provided for in this contract.



### TENSILE PROPERTIES OF PAPER.

S. Fotieff contributes to the "Wochenblatt für Papierfabrikation" the results of a large number of tensile tests made on paper at different points in the width of the web across the machine. The tests consisted of determinations of "breaking length" (tensile strength) and "breaking stretch" of strips cut from sheets at different points across the web. For this purpose the web of paper, about 82-in. in width, was divided into nine sheets, and the strength of each was determined. The tests were made with several papers of different types made on three different machines. In all cases great irregularities in the tensile properties of different sheets cut from the same web were registered, but papers containing mechanical wood were more regular than pure cellulose papers. The irregularity is more pronounced in strips cut from the cross direction of the web than in strips cut along the machine direction. The amounts of the variations in the average strength of the sheets ranged from 5 to 20 per cent. Generally the tensile strength increases from the two edges to the middle of the web, whilst the tensile stretch varies in the opposite sense. The greater strength of the paper towards the middle might be explained by the fact that the bowls of the wet-presses and calenders are always ground with a camber in the middle, so that the paper is more heavily pressed at that part. Mr. Fotieff, however, has examined this explanation, but cannot

corroborate it; in fact, he arrived at an opposite conclusion. Failing that, he is inclined to fall back on general considerations of the manner in which the fibres of the paper are put together on the machine. As the liquid pulp flows on to the wire the fibres which settle in different strata all tend to set themselves in the direction of travel. The side shake is designed to overcome this tendency, and by assisting the felting of the fibres, it improves the strength of the paper, whilst it partially evens up the differences of strength between the two main directions of the sheet. The cause of the irregularities across the web is to be sought in the action of the deckle straps on the liquid pulp under the influence of the side-shake. The pulp is thrown against the straps and comes back in the form of waves or ripples, which neutralize the motion of the main shake and produce zones of bad felting near the edges of the web, whilst their influence is not felt near the middle.



In reference to a report in some of the newspapers that a child in Niagara Falls had been poisoned through chewing a piece of wallpaper impregnated with arsenic, Reg. N. Boxer, President of The Reg. N. Boxer Co. Ltd., New Toronto, writes as follows:—

"Knowing that arsenic has not been used for many years in the coloring of wall paper I investigated this matter, and have information now from Niagara Falls that there is no truth whatever in the report of the child's death; that it first appeared in an American paper and was later copied in Canadian papers, and that there was nothing whatever in it."

Geo. H. Millington, Superintendent of the Sault Ste. Marie Pulp and Paper Co., has resigned to go to the Ocean Falls (B.C.), pulp mill. Before leaving he was presented with a handsome gold watch.

### ALTERATIONS IN SUPERFICIAL DIMENSIONS OF PAPER.

In the "Wochenblatt für Papierfabrikation," Dr. Klemm deals with a subject which is of the highest interest to papermakers, printers and other users of paper. One of the most fertile sources of trouble in the packing, storage and printing of paper is the alteration of the dimensions of the sheets with changes in the moisture condition of the paper.

Dr. Klemm has started a systematic series of experiments in connection with these changes, and has made a number of determinations of stretch and contraction with various types of paper. The mode of procedure for these determinations is simple: a 200 mm. square is cut from the sheet of paper by means of a knife and template. The paper is floated on the surface of water until the air is expelled and is then totally immersed until fully saturated and no further stretching can be detected. The paper is next drained on blotting paper and the new dimensions of the sides of the square are noted: these represent the maximum expansion in the two directions of the sheet respectively. The paper is then allowed to dry in the air, which should be maintained at a constant degree of humidity. The standard humidity of the atmosphere is taken at 65 per cent. of the saturation humidity. Care must be taken that the sheets of paper have complete freedom to contract in all directions during drying and are subjected to no strain whatever. The dimensions of the air-dried paper are then noted, and in most cases it will be found that the new dimensions of the re-dried sheets are smaller than the original 200 mm. square. If the sheets are then completely dried in an oven at a temperature of 121 F., a still further contraction from the air-dry dimensions will be observed.

All these variations are expressed in terms of percentages of the original dimensions of the paper (200 mm.). The

algebraical sum of the stretch and contraction gives the total variability of the dimensions of the paper in the directions of the sheet, and the ratio of the variation in the cross direction to that in the machine direction is a factor of some considerable importance.

A study of the table of results accompanying Dr. Klemm's article will show how differently different types of paper behave on damping and drying. The troubles in which a large variation in the dimensions of papers under the influence of moisture gives rise are well known. Stacks of paper which are stored in a damp atmosphere stretch at the edges and form wavy edges in the sheets. In an extra dry atmosphere, or if the paper has been stacked somewhat dampened, the edges of the stack will lose moisture and contract so that wrinkles will be formed towards the middle of the sheets. Again, in pasting papers, if one layer expands and shrinks more than the other, when pasted and dried, the pasted boards will tend to curl. Further, in the manufacture of paper spools a great variation between damp and dry dimensions may cause the cylinder to collapse, because the area of the outer plies is greater than that of the inner plies.

Whilst in some applications of paper, the important factor is the total variation of the dimensions of the paper between damp and air-dry condition, in other applications it does not matter how much the paper stretches when damp, provided it does not contract very much from its original dimensions on re-drying. This is the case with enamelling papers, etc., which may curl at the edges if the shrinkage on drying is large; also in the case of bound books with sprinkled or otherwise decorated edges.

Lastly, the question of expansion is very important in the case of papers which have to give accurate register, such as litho-printings for color work, map papers and papers which have scales printed on them. For lithographic purposes it is particularly de-

Table Showing Stretch of Various Papers on Damping and Their Shrinkage on Re-Drying.

Type of Paper.	A.		B.		C.		D.	
	Stretch on damping.		Shrinkage on re-drying in the air.		Shrinkage on re-drying in the oven, 212 degs. F.		Total range of variations of dimensions.	
	Across, per cent.	Machine, per cent.	Across, per cent.	Machine, per cent.	Across, per cent.	Machine, per cent.	A To air-dry condition. B To oven-dry condition. Ratio	Across, Machine, Across: per cent. machine.
1. Multi-color litho printing....	0.72	0.6	0.25	0.5	0.75	0.75	A 1.0 0.5	2:1
2. Ditto (good) .....	0.5	0.0	0.5	0.25	0.625	0.5	B 1.5 0.75	2:1
3. Ditto (faulty) .....	2.0	0.25	0.125	0.25	....	....	A 1.0 0.5	2:1
4. Ditto (faulty) .....	2.0	0.125	0.0	0.25	....	....	B 1.125 0.5	2:25:1
5. Ditto .....	1.25	0.5	0.75	0.25	....	....	A 2.125 0.5	4:25:1
6. Chart paper .....	1.0	0.75	0.5	0.5	....	....	A 2.0 0.375	5:3:1
7. Ditto .....	1.25	0.5	0.5	0.25	....	....	A 2.0 0.75	2:7:1
8. Photographic paper .....	1.0	0.125	0.75	0.5	1.0	0.9	A 1.5 1.25	1:2:1
9. Drawing paper .....	1.5	0.25	0.5	0.5	....	....	A 2.0 0.75	2:7:1
10. Ditto .....	2.0	0.5	0.5	0.5	....	....	A 2.5 1.0	2:5:1
11. Ditto .....	2.5	1.5	0.5	0.5	....	....	A 3.0 2.0	1:5:1
12. Ditto (faulty) .....	2.25	0.5	0.75	0.5	....	....	A 3.0 1.0	3:1
13. Ditto (faulty) .....	2.0	0.25	0.5	0.5	....	....	A 2.5 0.75	3:3:1
14. Writing paper (normal 3b)...	1.5	0.25	0.75	0.5	1.75	1	A 2.25 0.75	3:1:1
15. Printing paper .....	2.0	0.25	0.75	0.5	2.0	1.25	B 3.25 1.25	2:6:1
16. Paper made on cylinder machine .....	1.375	1.0	0.75	0.5	0.625	1	A 2.75 0.75	3:7:1
17. Blotting paper .....	0.5	0.0	0.25	0.25	0.75	0.25	B 4.0 1.5	2:7:1
18. Parchment paper (opal).....	5.0	3.5	1.75	1.25	4.0	2.5	A 2.125 1.5	1:4:1
19. Ditto (clear) .....	7.0	1.0	2.0	1.75	4.35	3.25	B 2.0 2.0	1:1
							A 0.75 0.25	3:1
							B 1.25 0.25	5:1
							A 6.75 4.75	1:4:1
							B 9.0 6.0	1:5:1
							A 9.0 2.75	3:3:1
							B 11.5 4.25	2:7:1

sirable that the stretch in the two directions of the sheet should be as nearly equal as possible. This is seldom obtainable with ordinary machine-made papers, but it will be seen from the table that papers which stretch twice as much in the cross direction as in the machine direction are readily obtainable; i.e., those which show a ratio of 2.1, whereas a paper which shows a ratio of 3.1, or more, is likely to give unsatisfactory results in multi-color printing.



#### NEWFOUNDLAND'S PULP POLICY.

H. J. Crowe, of Halifax, N.S., who has large pulp and paper interests in Newfoundland, in an interview recently, made the following remarks on the Island's policy toward that industry:—The Government of Newfoundland realizes that its forests are one of the greatest assets, and if it allowed the export of pulpwood, it would very rapidly be depleted without any adequate return being left in the Colony, and they do not propose "to pull the chestnuts out of the fire" for the United States while they are waiting for their inevitable wood famine.

The export of pulpwood would mean contributing to the supply of the raw material for paper mills in the United States while prohibiting the export would limit the cutting of the forests to the capacity of the mills on the Island, and the loss in revenue and labor to the Colony by allowing the United States to manufacture their wood would be equal to at least \$15 per cord.

The country that owns the raw material, with facilities for manufacturing should realize the full value of the finished product. This applies more particularly to the forests from which you cannot get an annual crop. We should not be content to manufacture only pulp and ordinary newspaper, but make the most of these resources by turning them into the highest grades of paper.

We cannot value too highly our trees which preserve our soil, climate and water powers, and are almost indispensable for humanity from the making of our cradles to our last resting place.



#### CHLORINE AND CAUSTIC BY ELECTROLYSIS.

W. Ebert, engineer, of Charlottenburg, Germany, has invented a new chlorine-caustic soda machine. The side walls consist of granite plates (or reinforced concrete) which are specially cemented and held together by iron anchors. The whole bath rests with its wrought-iron bottom, which carries the iron cathodes in the bath, on insulated iron T-girders. The lids of the baths consist of reinforced concrete or stoneware, and are provided with the requisite fittings for the electrodes and for the pipes of the salt solution and the hot solution. The salt solution enters through pipes branching over the entire bath at various places into the anode chamber.

The chlorine gas produced in the anode chamber is conducted through stoneware pipes to the right-hand end in order to be worked up to bleaching liquor or solid chloride of lime or to be compressed and liquefied. The caustic alkali lye formed in the cathode chamber is conducted into a tank and thence conveyed into the evaporator. The hydrogen generated in the cathode chamber is led away at the left-hand end through iron gas-piping into the open air. The space above the baths is perfectly free, so that the heavy covers of the baths can readily be lifted with the aid of a travelling crane suspended on T-girders.

The baths are electrically connected in series and intended for an average load of 2,000 to 3,000 amperes at 3.5-4.2 volts for each bath. The feeders and the connecting conductors between the various baths are underground and so arranged



that individual baths can be short-circuited while working, i.e., cut out without disturbing the remainder of the plant.

In an uninterrupted trial lasting four weeks and exactly controlled by experts, a plant working already for a long time gave the following average results:—

- (a) load: 2,002 amperes;
- (b) voltage of bath: 3.66 volts;
- (c) yield of current: 94.7 per cent.;
- (d) concentration: 130 g. NaOH per litre;
- (e) chlorine gas: proportion of carbonic acid 1.17 per cent.

If so-called bleaching lye is made from the chlorine gas thus obtained by introducing it into milk of lime, a total requirement of electrical energy of about 4 kilowatt hours can be reckoned for the manufacture of 1 kg. active chlorine; the best bleaching electrolyzers of the present day require, on the contrary, about 6 kilowatt hours per kg. active chlorine.

The requirement of salt in "electric bleaching lye" amounts to at least 5 kg. mineral salt for 1 kg. active chlorine. In the new chlorine-caustic soda process the consumption of salt is considerably less and amounts to either about 3 kg. or 1.6-1.8 kg., according in each instance as to whether the caustic soda solution is employed further directly with the still undecomposed sodium chloride always contained in it, or whether by evaporating the soda lye, the sodium chloride contained therein is crystallized out, in order to use it again in the manufacture.

In addition to the above favorable numbers with regard to the consumption of power and salt there is the important advantage of simultaneously producing caustic soda, a circumstance which materially contributes to the profitability of such plants.



John R. Barber, the well-known paper man of Georgetown and Toronto was in Ottawa recently interviewing the Government on the subject of Reciprocity, towards which he holds very antagonistic opinions.

## CREASES IN PAPER.

(From the "World's Paper Trade Review.")

The "Papierfabrikant" publishes an article in which the causes of creases are discussed and the means whereby they may be prevented. In the first place it must be determined whether the creases have been produced on the paper machine or on the super-calenders.

Creases produced on the paper machine run from the inside of the web outwards to the edge, they rarely cause a break because they run backwards to the edge. Creases produced on the calenders run in the opposite direction since the paper is reversed on going through the super-calenders (provided it has not been re-reeled before glazing). Creases may be produced at many points on the paper machine, starting from the dandy roll. Laid dandies are especially liable to form creases if the edges of the paper are too moist. These creases do not break up, but are visible as dark diagonal streaks in the look-through. They are caused by the lifting of the paper from the wire by the dandy roll and its subsequent dropping, so that the point of the crease always runs out in a forward direction, thus opposite to the general run of machine creases. The couch roll jacket may also be the cause of creases, if it be unequally worn or if the couching is not sufficient. If the paper is not evenly couched, the damper portions sag down and form creases when they are transferred to the wet felt, at the places where the limits of the drier portions begin. These can be cured either by retarding the draw of the wire or placing a strip of paper on the leading roll so as to support the sagging portion. If the trouble takes the form of edge creases due to a worn jacket, the whole jacket should be scratched down in order to reduce the thicker places. Next, creases may develop under the first press-roll if the felt be either new or freshly washed or

reversed. Air collects between the up-standing nap of the felt and the sheet of paper. This causes first a bubble and then a crease. Tightening up the press generally removes the trouble, if not, the felt may be too tight or too loose or its texture may be distorted. Creases on the edges or in the middle of the web may be produced on the drying portion of the machine if the draws be too slack or too tight or if the leading rolls have accumulated dirt so that they are larger at the middle than at the ends. Drying creases are the evidence of unequal drying or pressing or too slack draws. They are not pressed but show in the form of cockles and only appear where the paper, already fairly dry, is about to pass on to one of the last drying cylinders. Drying creases are not easily perceived and are therefore particularly dangerous. In order to restrict their formation it is necessary to see that the paper is already lying flat on the cylinder before it is covered with the drying felt. They generally occur at the edges, because the paper is generally drier at those parts.

Creasing is generally most troublesome at the dampers and super-calenders. These machines produce much broke if they are not carefully erected or are erected in an unsuitable position. If the bowls are not accurately ground together and do not lie exactly parallel rational working becomes impossible. If everything is in order and the draw is free from jerks, creasing can only be attributed to irregular drying. Dry or thin edges are very much inclined to develop creases. The causes may be insufficient camber on the press rolls, defective contact of the drying felts at the middle, etc. "Wet" beaten papers are more difficult to dry than "free" beaten papers, and hence any defects in presses and felts make themselves more in evidence and creases result. Particularly with thin papers is this the case, the paper being drier in some

parts than in others and thus shrinking equally under the drying felts. This may often be noticed with cotton felts; the trouble may be mitigated by stretching the felts tighter and drying more gradually.



#### A BRITISH COLUMBIA OPINION.

Hon. A. S. Goodeve, M.P.P., formerly Provincial Secretary for British Columbia, speaks thus of the prospects for the Pacific Province, should the reciprocity agreement pass:—

Disastrous results would attend our natural raw products, particularly pulp wood, lumber, coal and minerals. They will be taken across the line to manufacture, and the Dominion will lose the benefits. For years our lumbermen have produced evidence to prove that the United States lumber mills were using our provinces as dumping grounds for their surplus stuff, and at times have actually sold it below the cost of production. It can be clearly seen, therefore, that any cut in duties can be of no advantage to us. It was only when the United States realized the value of the Canadian market that they gave the reduction to our reciprocity delegates, but that cut has nothing but harm in it for our lumbermen.



Mr. S. Charles Phillips, editor of our well-known London contemporary, the "Paper-Maker and British Paper Trade Journal" has just returned with his wife and family from an extended visit to South and Central America, West Indies, etc., and is now on his way, by way of the United States, to Canada. We are looking forward with pleasure to a visit from this renowned paper trade journalist.

**FINISHING SUPER-CALENDERED PAPERS.**

The most important factors which influence the finish obtained on paper by means of super-calenders, are as follows: First, the condition of the paper as it comes from the paper machine, the amount of loading it contains, its weight and moisture. Second, the condition of the super-calender rolls, the method of sanding the paper rolls, their size and speed. Third, the application of steam to the paper before it passes over the stack.

The condition of the paper is of the utmost importance to a good, uniform finish, which cannot be obtained unless the sheet is properly dried. The edges are most important, and when one edge of the sheet contains more moisture than its opposite, the calender man must try to overcome this defect by running less pressure upon the damp edge of the sheet. This practice is very damaging to the calenders, as the unequal pressure affects the paper rolls. On paper containing damp streaks, it is impossible to secure a satisfactory finish. Over-dried paper necessitates extreme pressure being used on the calender rolls, which in turn require large quantities of oil to prevent the bearings and journals from getting hot. This oil works into the edges of the paper rolls and decreases their life very greatly. Some machine tenders have a very bad habit of tearing small pieces of paper from the edge of the web while it is running from the machine calenders to the reel. In running the paper through the super-calenders, this tear out often doubles over and marks the paper rolls so badly that it is necessary to "sand" the mark out before the running of the paper can be resumed. On lightweight papers the machine tender and machine help should do everything possible to make as perfect rolls for the calenders as possible, the unevenly wound rolls causing much loss of time and paper. The lighter the weight of the paper, the more moisture it should contain, for

then it is possible to obtain a satisfactory surface without applying much pressure; consequently, the breaks are fewer and the paper is calendered more rapidly.

Paper containing a large percentage of mineral loading should never be subjected to hard pressure on the first run through the calender stack, for it will be blackened upon its surface. The best finish on such a paper is secured by running it through the calenders two or three times with but little pressure applied.

The closeness of the sheet affects its finish very much. The sheet made from short and well-milled stock takes a firm and brilliant finish, while the paper made from long stock, which produces a cloudy looking sheet, will not take a finish that could be termed desirable.

Paper taken direct from the paper machine will not take as good a finish as that secured when the paper has been allowed to stand for a day or two subject to the atmosphere of the mill.

The condition of the paper rolls of the calenders is probably the most effective factor in super-calendering paper, and oftentimes the difficulty when paper is calendered is due to the defects in the rolls

Naturally, they should always be kept in first class condition; that is, free from marks and spots, and perfectly true. Their even shape is usually destroyed by careless "sanding." Should the man employed in this work fail to bear evenly upon the sand block, he will produce what is termed a cone-shaped roll, which causes the journals to get over-heated. Large quantities of oil are applied to overcome the latter trouble, but this is not sufficient, as the roll will still continue to heat when the calender man usually shifts the roll; consequently, the stack is placed out of line, and new difficulties appear when the paper is run through it. These are in the line of cutting edges, or straight wrinkles, which cut in two during their passage through the stack. To prevent this as far as possible a tighter friction

is carried on the paper, which takes from it nearly all its stretch, and leaves it so weak that the slightest defect upon its edge will cause it to break in the middle of the stack or when it is leaving the bottom roll. At this point it will double in a bunch, and in most instances mark the roll so badly that an hour or two is lost in "sanding" it. Usually, the roll is made more cone-shaped by the extra "sanding," and the binding on the journals becomes more pronounced. To eradicate such troubles it is necessary to pay closer attention to the work of "sanding" the rolls; it must be done so that the true-ness of the roll will not be disturbed.

To obtain the best possible finish the top roll should be as free from marks as the bottom one is. Unless it is kept so, sufficient quantities of steam cannot be used, because the markings on the roll will appear.

The size of the calender roll affects the finish of the paper in the following manner: When the paper rolls and steel rolls are of the same diameter, paper of white shade will blacken when a high surface is given it by heavy pressure on such a stack; but should the steel rolls be smaller than the paper ones this trouble will be avoided. The calender composed of rolls of equal diameter will put a better finish on a heavy sheet than any other.

In the writer's opinion a nine-roll stack is sufficient for any style of finish. I consider the eleven-roll stack a nuisance, for it is too heavy and subjects the paper to too much pressure during the first time through. To obtain a desirable finish one must proceed slowly and by stages, in which the pressure on the paper is gradually increased and regulated by the operator of the calender. On an eleven-roll stack it is often necessary to skip the bottom nip or last two rolls, which makes the calendering of the paper much more difficult.

Almost all papers will admit of a certain pressure being applied the first time through the stack, and when this pressure is exceeded the paper, or rather its surface, is blackened.

The third factor mentioned in this article as having a bearing on the finish of paper is the steam applied to the paper as it is about to pass into the top rolls of the stack. The distance of the pipe from the paper and its arrangement are very important, and it must be so equipped that the presence of water drops will be avoided. The steam pipe should be far enough from the sheet passing over it so that a cloud of steam will saturate the paper uniformly. The valves used for the regulation of this steam should be of the best quality and easy to adjust.

It remains for the calender man to determine which side of the sheet the steam shall be applied to. Not infrequently the felt side requires it more than does the wire side, but it is customary to use it on the latter side on most grades of paper.—Paper.



#### DIRECTORY OF PAPER MAKERS.

The 1911 issue of the Directory of Paper Makers of the United Kingdom is now to hand. This book is so well known that it needs no detailed description in these columns. The chief features of the present edition are:—

Lists of paper makers of United Kingdom under all the various headings, carefully and authentically revised to date.

List of trade designations (used by paper makers, wholesale stationers, etc., for papers, stationery, cards, etc.), divided into two sections, viz.:—

1. Actual watermarks.

2. Trade names (not being actual watermarks), of great value to printers, stationers, etc.

Paper trade customs.

A classification of advertisers, forming in itself a complete directory of paper makers' principal engineers, purveyors of raw materials, paper mill, etc., suppliers, etc.

The directory is published by Mar-  
chant, Singer & Co., 47 St. Mary Axe,  
London, E.C. Price (postpaid) abroad,  
1s. 7d.



## THE FAMINE IN CHINA.

Editor Pulp and Paper Magazine:

Sir,—We are writing the editors of our Dominion, asking their co-operation in securing help for the famine-stricken Province of Anhui and Kiangsu, in China, where nearly three million people are destitute and perishing.

The conditions there are appalling. The harvest was all destroyed by the terrible flood, and no food can be had from the soil until June or later. Many villages were entirely swept away and the people left homeless and in dire distress. Multitudes gather together in great camps; those who are strong enough wander over the hills, pulling up roots of weeds for fuel in cooking the pittance of rice they may receive from the relief agencies. The suffering is terrible. Thousands of tottering babies, boys and girls clad in rags—if clad at all—are about everywhere; old men and women hobble about, leaning on sticks for support, or lie by the wayside, their eyes staring up in mute appeal. Many thousands have perished, and it is estimated that over a million will die unless help is **immediately** sent.

The Chinese Consul-General at Ottawa writes that the distress is indescribable. The honorary secretary of the Distributing Committee in Shanghai cables that the famine area is larger than at first believed. Bishop White, of Honan, cables an urgent appeal for help.

The one hundred thousand dollars asked from Canada to help meet this awful situation should be **easily and immediately secured. One dollar and fifty cents will save a human life.** How many lives will your readers save?

The editors of our country can do more than any other class to assist in this work. We ask you to make a strong appeal through your paper, making use of this letter as you may think necessary, noting that His Excellency Earl Grey, His Honor the Lieutenant-Governor, J. M. Gibson, and the Hon. Sir James Whitney are giving this move-

ment their hearty support. Contributions may be directed to the treasurer of the Central Committee, S. J. Moore, 445 King Street West, Toronto.

Yours sincerely,

W. A. Charlton,  
Chairman.  
J. H. Gundy,  
Secretary.

[As a commentary on the above letter we quote the following from a cable report: "A St. Petersburg correspondent forwards the story of an eye-witness, who has returned from Adekhe, a Chinese town on the River Amur, in which the plague has left not a soul alive. He says: 'The town, the squares, the streets, the houses, all are empty. Death has passed and left only one living creature, a Chinaman, in rags, who went mad and died as we entered the city. The doctor marched at our head. We followed, dressed and masked, to protect ourselves from contagion. We walked through empty streets. A few weeks ago the town was a busy one. Now the only sounds were the creaking of the open doors as the wind moved them.'"]



## KOENIG'S NEW TEXTURE METHOD.

A very handy and simple means is suggested for the quick examination of texture in all papers that are not too deeply dyed, known as the Koenig method:—

1. A short tube of galvanized iron or aluminum, with one end flattened out until the opening is a mere slit.

2. A simple disintegrating device made by tying together seven or nine aluminum springs at one end, and breaking off every other end, so that a sort of rake is produced, its teeth consisting of the ends not broken off.

A small strip of the paper under examination about one-fifth inch wide is thoroughly damped and laid on a clean glass. The slit above mentioned is then held firmly on to it close to one end of

the piece, which has been cut square. The part between the slit and the end is then torn up with the disintegrator, and the slit is moved back a little, whereupon the disintegration is repeated, and so on until as much as possible of the strip has been treated.

The force used in scraping must, of course, be adjusted to the strength of the paper. A minute's work will give enough fibre to examine. It still remains on the glass. As much as possible of the water with it is removed by gentle pressure with blotting paper, and it is then wetted with a solution of iodine in zinc chloride spreading the fibre about in the reagent with a needle.

A second glass is then laid on, and the excess of reagent is squeezed out from between the glasses. The result is a slide for microscopic examination. The whole process of making the slide need not take five minutes. The process can also be applied to dark-colored papers, but there is then no very great advantage, as the paper must be bleached to begin with, and the saving of time is practically lost.



#### MR. ROWLEY ON RECIPROCITY.

W. H. Rowley, President and joint Manager of the E. B. Eddy Co., Hull, and President of the Canadian Manufacturers' Association, speaking in Montreal recently, expressed his views on the proposed Reciprocity agreement as follows:

If this agreement goes through every paper mill in Canada making cheap book and writing paper, wrapping paper and wood board will be hit hard, and many of the smaller paper mills will certainly have to close down. United States paper mills will not benefit much by the agreement, because the British mills and the mills in Scandinavia will owing to lower wages and operating costs, take practically all the business in this line that Canada has to offer, and thus

very little of the lower grades of paper could be sold in Canada by the United States mills.

As to the news mills in the United States, it will certainly handicap even the largest of them, and in the case of the smaller mills will shut them down altogether. As far as the paper trade of the two countries is concerned, if the President of the United States on the one side, and the Minister of Finance for Canada on the other side, had started out to see how much harm they could do to the paper trade of the two countries, they could not have planned better.

The President of the United States was not fully informed, for he overlooked the fact that if Canada gave the United States free entry to Canadian paper markets Canada would have to give Great Britain and the treaty countries the same free entry, and Mr. Fielding appears to have overlooked the fact that with the free entry into Canada of paper valued at under 3 to 4 cents every paper mill in Canada making those cheap grades of paper will be seriously injured, and some will surely have to shut down.

So far as the news paper is concerned, Mr. Fielding does not appear to have realized that large sections of the United States must have news paper made from Canadian wood, and therefore he and we could afford to 'stand pat' on that and let our neighbors to the south of us come to us for what they want, when they want it, and pay a fair price for it, or better still, come to Canada and make paper out of Canadian wood, with Canadian labor. As it is they have messed the whole thing up, as far as paper is concerned, and Mr. Fielding knows it, and the Prime Minister can learn it if he wants to.



H. J. Dickerson, Ottawa, has installed one of his patent pulp screen systems in the E. B. Eddy Co.'s mill at Hull.

## RECOVERY OF BY-PRODUCTS.

Until within the last thirty years the paper industry has rested almost wholly upon the use and conversion of a waste product of civilization. Cotton having served its most useful purpose in clothing mankind, its residues of cast-off garments become one of the raw materials from which the paper is made. We cannot expect a series of industries to thrive on the successive by-products of each, demonstrating the law of conservation of energy. There are, as a matter of fact, no by-products from the manufacture of paper from rags. But when we come to the use of wood, a highly complex product of plant growth, containing only from 40 to 60 per cent. of cellulose and the balance, nearly one-half its solid contents, a by-product, we have an industrial problem of great importance and magnitude to deal with. Further than this, all of the raw materials entering into the liquors for the reduction of wood and a few other raw materials used for paper stock, notably esparto grass, become waste or by-products, and these also are large and important quantities.

Different kinds of woods differ essentially in their physical and chemical constitution and composition, and for the purposes of paper stock require discriminating treatment. This is so to such an extent that only the easiest woods to reduce are used. Such woods uniformly contain a larger proportion of cellulose, and a corresponding smaller proportion of extraneous matter, which the chemical treatment must dissolve out, and therefore are doubly more economical to reduce.

On the other hand it is true, as a general statement, that what different kinds of wood and plant growth lack in wood fibre, they make up, we may say in equivalent value, if not in the stalk, in fruit. Poplar contains 55 to 65 per cent. cellulose, spruce 55 to 60 per cent. hemlock, and jack pine about 50 per cent., while chestnut log and long leaved

pine contain much less. The study of plant growth is quite fascinating technically as botanically. The roots, bark and foliage of all plants contain the minimum of cellulose or crude fibre as compared with the stalk and the maximum of soluble extractive matter. Hemlock bark contains 15 to 16 per cent. of tannin, the wood about 1 per cent., while chestnut bark runs about 12 per cent. and 7 to 8 per cent. in the wood, and liquorice root about 50 per cent. of extract and a pithy fibre. This is naturally so, since it is in the roots, bark, and foliage that growth takes place, while the stalk or fruit is the finished product.

Nature has chosen to differentiate her products of woody stalks, and we have the pine secreting large amounts of pitch and resins, while hemlock, oak and chestnut contain tannin in varying amounts. It is worth while to note in passing, that the woods containing these secretions are most durable when exposed to the action of time, and that this provision was made for a wise purpose. As an inference from this deduction, we are directed to the best means and methods of wood preservation. Pitch and tannin are nature's fungicides to ward off disease and decay, and there is a good reason for the claim that the pine grove and forest are health giving.

It has been the practice to treat the natural wood for pulp, and all else becomes a waste product. From a commercial standpoint we may just as truly regard the intercellular and ligneous matter in wood as a by-product, as after the reduction process, where it appears in the waste liquors.

A great deal of labor and money has been spent on the matter of waste liquors from the pulp industry, particularly in the manufacture of sulphite. Is it not quite possible that much of this waste might be avoided and the reduction of the wood accomplished more economically by some preliminary treatment of

the wood, whereby if useful products cannot be extracted from the wood, at least the matter handled in such a way as to reduce the cost of conversion and lessen stream pollution?

We have a few cases in point—chestnut wood is extracted for tannin by the leather industry, and the extracted wood is a by-product. Long leaf pine is now treated to some extent for rosin and turpentine, and the wood is not yet used for pulp, but probably will be soon. Again, some wood is boiled under pressure with water and steam for the production of stock for a tough board, and the acid water is rejected. I mention this latter to show the possibilities of a simple treatment to produce an effect or differentiate.

Generally speaking, where a useful product or substance exists incidentally in a raw stock, it is much more available in it than at any subsequent stage of a process for the main product, because it becomes more involved, obscured and difficult to regain. A very important case in point is the recovery of wool grease and potash from wool. It has long been the trade custom to scour wool and reject the scourings, to the injury of adjacent streams, or else to partially recover the grease by treatment with acid and skimming. This process is, to say the least, not very satisfactory for many reasons. It has held on by prejudice altogether too long. Wool lends itself to an extraction process perfectly, and there is no reason why, with equal intelligence, clean wool of better quality should not be obtained by an extraction process than by scouring. The subsequent washing would be simple and inexpensive, and the grades would be of better quality. I wish to make this point, that in any process using a complex raw material, in which there exist possible valuable by-products, a selective treatment has a decided advantage over a blanket treatment, both in processing and in recovery of useful by-products.

Having now outlined the situation and general mode of procedure, we will take up the by-products of the paper industry as they now exist.

First, there are the rossings—a by-product of the wood cleaning. They consist of bark and wood, and have in the past been regarded as waste to be burned up or otherwise rejected. Now, as a matter of fact, this waste can be turned to a more valuable account, both by chemical treatment to secure valuable products, and also by mechanical to produce pulp board and lumber. I am very well aware of the fact that seldom can a successful business be built upon a waste product of some other industry, but when the treatment of such waste is carried on conjointly with its production it is frequently very profitable.

It has long been the custom to recover the soda from this liquor by evaporation and burning out of the organic matter. Few attempts have been made to get anything more out of it, though several years ago a notable effort was made to produce powdered carbon black from the black ash residues, to be used in paints and for enamelling cloth and leather. This was fairly successful, but commercially short lived.

The black liquor from poplar wood contains about 10 per cent. absolute acetic on the dry solids basis, combined, of course, as sodium acetate. It contains also about 7 per cent. of extract by ether and 28 per cent. by absolute alcohol, making a total resinous extract of about 35 per cent.

Acetic acid and sodium acetate are valuable commercial chemicals, while resins are the basis of engine size in the manufacture of paper and are largely used in the soap and varnish industries. Here, then, is an enormous waste which I believe could be turned to profitable account if worked out, and I offer these problems to staffs of our Government experiment laboratories and students of our technical colleges.



In the recovery process of the soda there results a large quantity of calcium carbonate, roughly speaking, an amount equal to that of the soda recovered. Many attempts have been made to utilize this waste, and it is possible to do so. It can be used in the manufacture of Portland Cement; as the base for acid making by the sulphite process; or it can be reburned to lime and used over again. It has been recovered in each of these ways, but results have been doubtful, due to differing circumstances. I consider, however, that this waste can be disposed of in many localities at a slight profit when occasion demands it.

The last and greatest waste from which by-products are possible is spent liquor from the sulphite process. This contains not only the organic matter from the wood in enormous quantities, but practically all the chemicals in some form used in the reduction. Ever since the process was applied to the pulping of wood, numerous attempts have been made to recover useful products with but very meagre results.

As I have indicated above, and pointed out elsewhere, a much more rational procedure would be to treat the wood by selective processing, successively, with suitable solvents. In this way gums, resins, tannins, etc., can easily be gotten, and this followed by an acid treatment to obtain fermentable sugars, which in turn can be converted into alcohol.

Finally we shall secure the maximum pulp product with a minimum chemical treatment. This method of procedure is now attracting considerable notice outside of scientific experimentation. Naturally this would appear where conditions indicating success are most apparent, as resins and turpentine from pine, tannin from chestnut, and alcohol from spruce by the sulphite process.

In reference to the possibility of recovering sulphur and lime from the waste liquor, I have no hesitation in predicting that this can and will be accomplished at some future time, unless

the use of them shall be reduced to such a point that their quantities would be inconsiderable. The greatest obstacle to such recovery would be the necessity of evaporating the water out of the liquor. The process might be roughly outlined as follows:—

First.—Neutralize the liquor.

Second.—Evaporate so as to incinerate.

Third.—Adjust chemical composition so as to eventually obtain alkaline sulphides.

Fourth.—Burn out organic matter and obtain alkaline sulphides and carbonates.

Fifth.—Leach out sodium carbonate.

Sixth.—Treat earthy sulphides with water to a creamy consistency.

Seventh.—Blow with carbonic acid gas for hydrogen sulphide.

Eighth.—Burn hydrogen sulphide for sulphur dioxide.

Ninth.—Recharge residual earthy carbonates with the recovered sulphide dioxide to bisulphite.

Tenth.—Filter and purify the acid liquor for boiling wood.

Now I do not pretend that such a scheme is technically or chemically correct in all details, if it were, it would be available at once. It is quite possible that the exclusive use of soda ash as a base in making the acid liquor, would possess some advantage from several standpoints, and if recovered would not add to the cost. I believe such a process can be worked out successfully, but some money would have to be spent to do it. Taking into account the matter of stream pollution, such a process, even though it could not stand on its own legs commercially, might solve this much vexed problem.

During the last few years attempts have been made to use this concentrated waste as a core binder in foundry practice with satisfactory results, I believe, but unfortunately there is a very limited usage of any core binder. As an adhesive it is useless. The government has made some experiments with it as a road binder and dust preventive with no

results worth while. I suggest that it might have some value as an insecticide and fungicide in agriculture. I believe it is worth an intelligent test.

Another use to which this waste liquor could be put to good advantage is as a wood preservative. Decay in wood is due to fungoid growth, and any agent which will prevent this will prolong its life. Soft woods, which have had their air spaces filled by injecting sulphite liquor, are made dense and heavy, and may take the place of many hard woods, and by special treatment take a finish.

During the last few years we have heard a great outcry about the conservation of our natural resources. Shall we not carry this same spirit into the recovery of many useful by-products? If it is an economic waste to cut a tree before it is mature, it is wasteful to make an improper use of it, or to fail to recover all there is in it. The time cannot be distant when we shall recover many useful products which have hitherto been concealed under the name "waste."—Paper Trade Journal.



#### HOW TO DETERMINE STRENGTH.

It is a well-known fact that in machine-made papers the strength is nearly always greater in the machine direction than across the machine. Professor Herzberg, in an article to the "Papier Zeitung," states that for the majority of papers the ratio of the strength in the weaker direction to that in the stronger direction ranges from 60:100 to 75:100. Nevertheless, cases are by no means infrequent in which this ratio is as low as 33:100 or as high as 99:100.

Recently Professor Herzberg had occasion to test several samples of Manilla papers, in which he found that the paper in the machine direction was five times stronger than in the cross direction, the values for the ratios being in some samples as low as 18:100. These exceptional relationships were likewise

reflected in the tensile stretch of the paper in two directions, the stretch in the cross direction being more than four times greater than in the machine direction. The differences in the resistance to folding and creasing in the two directions were even more striking, the ratios of the weaker to the stronger directions of the sheets ranging from 8:100 down to 1.5:100.

Professor Herzberg uses this observation as an argument in favor of the valuing the strength of papers according to their minimum values, instead of according to the average values of the two directions of the sheet, as is the custom at the present time. He takes the view that a paper showing tensile breaking lengths of 6,000 and 4,000 metres in the two directions, respectively, is obviously far superior from the point of view of strength than a paper showing 8,000 and 2,000 metres, although the average strength of the two papers is the same, namely, 5,000 metres.

In a later number of the "Papier Zeitung," a correspondent takes exception to Professor Herzberg's conclusions, particularly as applied to Manilla papers. He points out that, even in the case of ordinary papers, the application of the proposal supported by Herzberg, as to judging papers according to their minimum strength, would be very difficult. It is easy to prepare a wood pulp paper showing an average breaking length of 5,000 metres, and the values in the two directions might easily be 6,000 and 4,000 metres, respectively. But such a paper would be of very different character from the Manilla paper of the same average strength, and for many purposes would be a totally insufficient substitute. The strength of the wood pulp paper depends on suitable milling and good felting, and it would be very difficult, even if it were desired to make this paper showing values of 8,000 and 2,000 metres in the respective directions of the sheet. On the other hand, the

strength of Manilla papers depends on their very long, strong fibres, which in most cases are beaten very free in order to obtain the great pliability for which Manilla papers are renowned. If Professor Herzberg's proposals were to be enforced in the case of Manilla papers, it would be necessary to beat the fibres to a much shorter length, and the special characters of the paper would be quite lost. Moreover, Manilla papers are very largely used for wrapping cables, and great strength, pliability, and toughness are required in the machine direction only; the specifications in this respect are so exacting that the paper-maker could not possibly afford to reduce the strength in the machine direction in order to increase that of the cross direction. Lastly, many customers know nothing of "breaking length" and judge the strength of a paper only by its tear. Given two papers made of the same material they will generally prefer the one with the longer fibres, even if the other, by longer milling and better felting, possesses a higher average breaking length.



#### **PULPWOOD QUESTION IN QUEBEC.**

The following is the text of the resolution upon which Henri Bourassa, the Nationalist leader in Quebec Legislature, made his important speech last month, which drew from Premier Gouin an emphatic statement to the effect that his Government firmly intended to cling to its announced policy of restricting the exportation from Crown lands of unmanufactured pulpwood:—

"In view of the new conditions that would arise from the ratification of the Canadian-American tariff convention with regard to pulp and paper industries, and to the exploitation of the forests, and in a general way to preserve to the capital, labor and trade of this province the full benefit of the set-

tlement of its soil and of the development of its natural resources, the House hopes that the Government will maintain in the regulation of the forest departments all that tends to foster the making of paper in Canada and in the Province of Quebec.

"The House further invites the Government to adopt, with the assent of the Legislature, a progressive policy on the matter, and especially:—

"First—To proceed without delay to a real separation of the forest regions and areas fit for settlement.

"Second—To bring back into the public domain forest limits and colonization lines held by speculators with the sole object of benefiting by increase in value.

"Third—To secure to the genuine limit holder the free possession of his limits for a determined period and to make him an interested party in the preservation as well as in the judicious and scientific exploitation of the forests.

"Four—To secure to the settler an easy access to the land, the entire and peaceful possession of his lots and the benefit of wood thereon, which alone can give him means of subsistence during the first years of his settlement.

"Fifth—To bring back in the public domain undeveloped water-powers, to preserve with a jealous eye the hydraulic energy of the province, and not to abandon it even temporarily to private exploitation only under well-defined conditions, tending effectively to promote the general interests of the people as well as trade and industry."



**Erratum.**—On p. 130 of the March issue it should have been stated that the twelve grinders to be installed at the East Canada Power and Pulp Co.'s ground wood mill at Nairn's Falls Que., were manufactured by the Holyoke Machine Co., Holyoke, Mass.

## Pulp and Paper News.

Ritchie & Ramsay propose to extend their coated paper plant at New Toronto. Plans have not yet been perfected.

\* \* \*

We regret to hear of the death of J. J. Gormully, K.C., one of the directors of the E. B. Eddy Co., Hull.

\* \* \*

Early this month the pulp and paper factories in Thorold, Ont., had to close down through low water in the canal.

\* \* \*

The New Brunswick Pulp and Paper Co. have moved their Toronto office from Richmond Street to 145 Wellington Street West.

\* \* \*

Owing to low water the pulp mill of the Imperial Paper Mills Co., Sturgeon Falls, Ont., had to close down for several days.

\* \* \*

The Georgetown Coated Paper Mills are adding two more 62-inch coating machines, making four in all. A 46-inch plater is also being installed.

\* \* \*

The Capital Paper Box Co.'s factory in Ottawa has been burned down, through a fire which is supposed to have started in an ash box. Loss in stock and machinery about \$3,000.

\* \* \*

The Canada Coating Mills, Georgetown, now has its two additional coating machines installed, making four in all. This company is meeting with a fine demand for its goods throughout the Dominion.

\* \* \*

The Inter-Lake Tissue Mills Co. will establish a factory in Thorold, Ont., installing at the start two tissue machines with a total daily output of ten tons. A ground wood mill will be installed in conjunction. I. H. Weldon, Toronto, is interested.

\* \* \*

Dryden, Ontario, Council will submit a by-law to the ratepayers to grant tax exemption for ten years and giving

its interest in Dryden Park to the Dryden Timber and Power Co., in consideration of the later erecting certain buildings, etc.

\* \* \*

The Canadian Stewart Construction Co., Montreal, has been awarded the contract for erecting the large paper mill of Price Bros., at Jonquiere, Que., at a cost for buildings, without machinery, of over \$1,000,000. Three paper-making machines will be installed.

\* \* \*

The Laurentide Paper Co. will hold a special meeting on the 9th prox., for the purpose of discussing a reorganization, including an increase of capital stock to \$10,000,000, so as to allow of extensions of the business, and an increase of dividend to 5 or 6 per cent.

\* \* \*

P. Gauvreau, a forestry expert of Quebec, while timber cruising in Northern Quebec, broke through the ice on Wendigo River and after extricating himself with difficulty, as he wore snowshoes, had to walk several miles with badly frozen feet.

\* \* \*

In accordance with the decision of the F. N. Burt Co., Toronto, as announced in last issue, that company has now taken over the Dominion Paper Box Co., of Toronto, and the combination will form one of the largest manufacturing stationery businesses in Canada.

\* \* \*

The Montrose Paper Co. will shortly install a new turbine. The company recently installed machinery for producing ripple and linen finish as stated before. The annual meeting was held a few days ago, when very satisfactory reports of the past year's business were presented.

\* \* \*

The Western Canada Bag, Envelope and Box Board Co., of Vancouver, who are just about completing a factory at New Westminster, at a cost of \$100,000,



assert that if the Reciprocity agreement goes into effect it will positively kill this industry and prevent the operation of the plant.

\* \* \*

Edward Miner, an employee at Booth's cardboard mill, Ottawa, was drawn into the rollers of the calendering machine and crushed to death. All but his head was taken in before power could be cut off. The deceased was 35 years old and leaves a wife and four young children.

\* \* \*

The factory of the Continental Bag and Paper Co., Ottawa, is completed, and most of the machinery installed, although a little delay has been experienced in obtaining some requisite special machines. The capacity will be 3,000,000 bags per day. Prospects for a good business are believed to be bright.

\* \* \*

Quebec Government is becoming aroused more and more to the necessity for providing the sinews of war for the proper protection of the forests. The sum of \$18,000 has just been set aside for this purpose, acting in conjunction with timber owners and railway companies. Other grants are likely to follow.

\* \* \*

A company has been incorporated in Quebec, formed of Montreal and Renfrew capitalists, to establish pulp and paper mills at the upper end of Lake Temiskaming, making use of the Quinze Rapids, which are said to have a capacity for generating 150,000 horsepower. M. J. O'Brien, of Renfrew and Cobalt, Ont., is one of the chief promoters.

\* \* \*

F. C. Adams, Portland, Ore., and C. D. Danaher, of Tacoma, Wash., are interested in a company under organization in Revelstoke, B.C., for the purpose of exploiting the wood pulp and waterpower resources of that district. They will begin with the erection of a sawmill and afterwards propose to es-

tablish pulp and paper mills of large capacity.

\* \* \*

D. Lorne McGibbon, who is connected with large Quebec Province shoe factories, and who formerly was with the Laurentide Paper Co., Grand Mere, Que., has bought the Cedar Rapids water power a few miles from Montreal, with a capacity for generating 150,000 horse power. It has not yet transpired what use will be made of the power.

\* \* \*

Significant of the widespread dissatisfaction existing within the government party with Hon. Mr. Fielding's reciprocity proposals is the opinion held by John R. Barber, one of the Government's strongest upholders in the past:—"I have been a staunch supporter of Sir Wilfrid Laurier," says Mr. Barber, "until his ministers brought forward this scheme of reciprocity. For years the paper manufacturers of Canada were encouraged to extend their industry under the assurance that the Federal Government would in no way tamper with the security of such undertakings by lowering or abolishing the tariff. Now we find ourselves thrown back on the guarantee of the Conservative Premier of Ontario that our factories shall be preserved from the inroad of American rivals. The paper manufacturers were given absolutely no reason to believe that the Government would attempt to oust us from our prosperous position. I am convinced that if the Government has the courage to go before the country on the question of reciprocity it will be ingloriously defeated."

\* \* \*

Wm. G. Ashdown, 1649 Mance Street, Montreal, has recently started in business as a commission merchant in pulp and paper mill supplies. Mr. Ashdown, who was for a number of years with A. P. Tippet & Co., has been appointed Canadian agent for the Duryea Manufacturing Co., of New York, manufacturers of the "Wooster" cotton belting, specially made for work in pulp and

paper mills as a moisture-proof and acid-proof belt. He is also Canadian agent for William Makin & Sons, Attercliffe Steel Works, Sheffield, makers of steel for paper mill purposes, such as roll bars and beater plates, refining engine blades, cutter knives, etc. Another British agency is that for W. Green, Son & Waite, of London, who manufacture dandy rolls and a non-corroding machine wire, which, by reason of its being proof against acids and water has an extra lease of life. Samuel Porritt & Sons, Limited, of Rochdale, have also appointed Mr. Ashdown agent for their felts, and the Lugdale Chemical Co., of Widnes, for their oxide of zinc and blanc fixe paste. Another new agency just entrusted to Mr. Ashdown is that of James Best & Sons, of Stoke-on-Trent, producers of china clay. An important agency placed in Mr. Ashdown's hands also is that of Chr. Wandel, of Reuttingen, Germany, the manufacturer of the original Wandel rotary screen for paper and pulp. There are over four thousand of these screens in use in various countries in the world, which is a good evidence of their efficiency.



#### NEW INCORPORATIONS.

St. Lawrence Paper Mills Co., Ltd. Mille Roches, Ont., capital \$1,000,000; G. L. D. Sedgewick, O. A. G. Ross, Toronto.

\* \* \*

The Dominion Western Timber Co., Ltd., Vancouver; capital, \$600,000. To manufacture lumber, pulp and paper.

\* \* \*

Grand and Toy, Ltd., Toronto, capital \$150,000. To carry on business as stationers, printers and book dealers. Jas. P. F., E. J. and A. M. Grand, Toronto.

\* \* \*

Consolidated Stationery Co., Ltd., Winnipeg; capital, \$80,000, has been licensed to do business in British Columbia, with D. A. McDonald, Vancouver, as attorney.

The Ritchie Contracting and Supply Co., Vancouver; capital \$100,000. Authorized among other things to make and deal in all articles made from pulp or paper.

\* \* \*

Fort Frances Pulp and Paper Co., Ltd. Toronto. To operate pulp and paper mills, capital, \$50,000. Wm Bain and several solicitors clerks' names are given as charter members.

\* \* \*

Beaver Creek Logging and Lumber Co., Ltd.; capital, \$50,000. To take over the business of F. J. Bissell, of Ruskin, B.C., and deal in and manufacture all kinds of wood, pulp and paper.

\* \* \*

Skeena-Naas Pulp and Lumber Co., Toronto; capital \$1,500,000. To manufacture lumber, pulp and paper. W. Gamble, Ottawa, and H. B. Housser, A. B. Taylor and S. R. Broadfoot, Toronto.

\* \* \*

Laurentide Company, Ltd., Montreal; capital, \$10,000,000. To acquire as a going concern the business now carried on by the Laurentide Paper Co., Ltd.; construct or acquire and operate mills for the manufacture of mechanical and sulphite pulp, paper, cardboard, etc., purchase or build boats, barges, etc., for the purpose of its business. Among the names given as charter members are R. C. McMichael, W. F. Chipman and R. O. McMurtry, advocates.



The Missouri State Board of Health has decided to furnish paper towels for every pupil in the public schools in the interest of health. This is already being done in several of the Toronto schools.

\* \* \*

The Spanish River Pulp and Paper Co., Limited, has been authorized under the Ontario Companies Act to redeem and cancel \$500,000 of its preference stock, and thereby reduce its capitalization from \$1,500,000 to \$1,000,000.

## RECIPROCITY AGREEMENT AND THE FAVORED NATIONS.

By R. W. Breadner.

Manager Tariff Department, Canadian  
Manufacturers' Association.

In the discussion on the proposed Reciprocity agreement with the United States some references have been made to "the favored nations," but comparatively little light has been thrown upon the relationship which exists between the favored nations and Canada at the present moment. The following information has been compiled to show the historical setting of the favored nation treaties and how the present proposed revision of the Canadian tariff will apply to countries other than the United States.

The resolutions now pending before the House of Commons to amend the Customs tariff of 1907 so as to allow for the proposed Reciprocity Agreement with the United States provide as follows:—

1. That the articles, the growth, product or manufacture of the United States, specified in Schedules B and D, admitted into Canada free of duty when imported from the United States.

2. That the articles, the growth, product or manufacture of the United States, specified in Schedules B and D, shall be admitted into Canada upon payment of the rates of duty specified in the said schedules when imported from the United States.

3. That the advantages hereby granted to the United States shall extend to any and every other foreign power which may be entitled thereto under the provisions of any treaty or convention with His Majesty.

4. That the advantages hereby granted to the United States shall extend to the United Kingdom and the several British colonies and possessions with respect to their commerce with Canada. Provided, however, that nothing herein contained shall be held to increase any rate of duty now provided for in the British preferential tariff.

Those countries known as the favored nations, which, under treaties of long standing with Great Britain are entitled to any tariff advantages granted to the United States under the present proposed agreement are given below with the dates of their respective treaties:—

Argentine Confederation—Under treaty made with Great Britain on the 2nd of February, 1825.

Austria-Hungary—Under treaty made with Great Britain on the 5th of December, 1876.

Bolivia—Under treaty made with Great Britain on the 29th of September, 1840.

Colombia—Under treaty made with Great Britain on the 16th of February, 1866.

Denmark—Under original treaty made with Great Britain on the 12th of July, 1670, which was confirmed by another treaty made with Great Britain on the 14th of January, 1814.

Japan—Under treaty with Canada dated the 31st January, 1906. This treaty will terminate on the 17th July, 1911. It is understood that another treaty with Japan is now under consideration.

Norway—Under treaty with Great Britain dated 18th March, 1826

Russia—Under treaty made with Great Britain dated the 12th of January, 1859.

Spain—Under treaty made with Great Britain dated the 9th September, 1713, which was confirmed by another treaty dated the 17th August, 1814.

Sweden—Under treaty with Great Britain dated the 18th of March, 1826.

Switzerland—Under treaty made with Great Britain dated the 6th of September, 1855.

Venezuela—Under treaty with Great Britain dated the 18th of April, 1825, confirmed by another treaty with Great Britain on the 29th of October, 1834, and again renewed and confirmed by an exchange of notes with Great Britain dated the 13th of February, 1903.

All of these treaties provide that no other or higher duties shall be imposed on the importation into British territories or dominions of articles of the

growth, produce or manufacture of the nations above named than are or shall be payable on like articles being the growth produce or manufacture of any other foreign country.

Regarding the French treaty with Canada, which came into force on February 1st, 1910, any tariff advantages granted to the United States on certain articles specified in Schedules B and C of the French treaty must also be granted to France, Algeria, French colonies and possessions and the territories of the Protectorate of Indo-China. The articles enumerated in the French treaty which would be thus affected by the agreement with the United States are: Cheese; garden field and other seeds, not herein otherwise provided for, when in packages weighing over one pound, not including flower seeds; grass seed, including timothy and clover seed; canned meats and canned poultry; extracts of meat, fluid or not; peanuts, shelled or unshelled.

Those countries now enjoying the privileges of the British preferential tariff would also be granted the same advantages as the United States, according to Resolution No. 4. The British preference now applies to the following countries: the United Kingdom; the British colony of Bermuda, the British colonies (commonly called the British West Indies, British Guiana, British India, Ceylon, Straits Settlements, New Zealand, South African Customs Union.

It may be said that the extension of the tariff advantages to the United Kingdom and the British colonies and possessions was optional with Canada, but so far as the above-named British countries are concerned, Resolution No. 4 is simply in conformity with the British preferential tariff policy. But this resolution also brings in the following additional British colonies and possessions to enjoy the advantages granted to the United States even although they were never entitled to the benefits of the British preference: Newfoundland, British Honduras, Australia, Territory of Papua (British New

Guinea), Labuan, St. Helena, Aden, Hong Kong, Cyprus, Malta, Falkland Islands, Gibraltar, British North Borneo, Sarawak, British West African colonies as follows: Gambia, Gold Coast, Sierra Leone, Southern Nigeria, Northern Nigeria and Lagos; British Central Africa, Mauritius, Seychelles Islands, Federated Malay States as follows: Pahang, Negri Sembilan, Perak, Selangor, Solomon Islands, Gilbert and Ellice Islands, Tonga and Norfolk Island.

Section 8 of the Customs Tariff Act of 1907 provides that fish and other products of the fisheries of Newfoundland may be imported into Canada free until otherwise determined by Governor-in-Council. The above-named favored nations and British countries, however (excepting France, New Zealand and the South African Customs Union), offer no special tariff advantages to Canada in return for the advantages obtained by them under the provisions of the French treaty and the proposed agreement with the United States. South African Customs Union and New Zealand now give a preference to Canadian products.

The marked difference in the interpretation of trade treaties by Great Britain and Canada as compared with the United States is such that the United States consider favored nations have no right to participate in the tariff advantages granted to a named country in return for tariff advantages granted by that named country to the United States.

(1) The tariff advantages granted by the United States to Canada do not extend to any other country.

(2) Canada under the resolutions pertaining to the Reciprocity Agreement will grant advantages to many countries.

(3) Canada's power to negotiate preferential trade arrangements with other British dominions would be in a large measure paralyzed, inasmuch as certain British Dominions hitherto not given a preference would be granted the same advantages as the United States through the application of Resolution No. 4 cov-



ering the Reciprocity Agreement. In this way Canada would lose any opportunity she might have had of establishing a closer relationship with Australia.

(4) With the exception of the treaties with France and Japan, power of abrogation is vested in Great Britain. Canada, therefore, cannot withdraw in any degree from such treaties without the denunciation of the whole treaties by the Imperial Government, which would imperil a large portion of the trade of the United Kingdom.



### TECHNICAL EDUCATION IN PULP AND PAPER MILLS.

F. L. Crosby, analytical chemist, Montreal, in a report to the Royal Commissioners on Industrial Training and Technical Education recently issued, said: "Commercial conditions are becoming such in this country that the wasteful policy of a large and rapid output of pulpwood, regardless of quality, must give way to that of careful technical supervision and attention to detail, with its consequent economies and more uniform products. The Canada paper trade stands at the door of an opportunity that calls for efficiency at least as much as protection. Canada has great opportunities of becoming a factor in the world's paper trade. Therefore we should bring about these things in the establishment of schools for improved technical efficiency. There are no such schools in America, but in Europe they have been established and found valuable. Canadian manufacturers are extremely interested in the establishment of such schools and want to see some such institutions in operation. One firm has had one of its members take a course at such a school in Manchester—which is perhaps the best equipped in the world. If young men are to grow timber for paper making it is certainly desirable that they understand the elements of pulp and paper technology. The sug-

gestive possibility of making from balsam as good a pulp as from spruce, or the introduction of other woods to serve as a source of paper, seems to be a very legitimate branch of the Forestry Service."



### POST'S PAPER MILL DIRECTORY.

Post's Paper Mill Directory for 1911 is as good in appearance and larger in size and completeness than ever before. It contains lists of pulp, paper and chemical fibre mills in the United States and Canada; also lists of mills classified according to the goods made. There is an index to officers of the various mills, and also (a very valuable feature) what is called a "Buyers' Guide to First Hands," which gives the names of manufacturers of machinery and appliances and dealers in paper makers' supplies. The names of jobbing houses in the United States which carry stocks are also given. Besides this, there are lists of rag and paper stock dealers; of the paper dealers in the principal cities; paper box makers in the United States; classified lists of manufacturers of paper bags and envelopes; also glazed, coated and cardboard manufacturers. Another feature is the list of watermarks and brands used in the United States and Canadian trade. There are several other useful features, but the above are the most important. The book is well printed and bound, and is provided with the usual careful indexes. Published by L. D. Post, "Tribune" Building, New York. Price, \$2.00.



T. T. Locke of the Ticonderoga Machine Works, has just made a business trip to Canada, stopping at Sherbrooke, Quebec, Grand Mere, Three Rivers, Montreal and Ottawa. Mr. Locke reports the outlook for pulp and paper machinery firms very good.

## Trade and Manufacturers' Notes.

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### JOHN McDOUGALL CALEDONIAN IRON WORKS CO.

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One measure of the strides which Vancouver is making in wealth and population is the rapid growth in the use of electric power in and about that city. The British Columbia Electric Railway Co., which has also extensive lighting and power franchises, is now utilizing over 33,000 horse-power from the plant at Lake Buntzen, and has in addition a steam auxiliary of 6,000 horse-power in the city itself. But the demand for electric power is so great that the company has just awarded to the John McDougall Caledonian Iron Works Co., Limited, of Montreal, the contract for another 10,500 horse-power wheel for an extension to the hydro-electric plant. It is known as the Doble-impulse wheel, and is specially suitable for high heads. At Lake Buntzen there is a fall of 380 feet, but Doble wheels are in operation under 2,000 feet head. This is rendered possible by the use of patented needle nozzles, which regulate the flow of water and act as relief valves to prevent undue shock in the inlet pipes. The McDougall Co. built a similar wheel for the Lake Buntzen power-house two years ago, and it has run without the slightest trouble ever since it was installed. These wheels, though rated at 10,500 horse-power, will really deliver over 15,000 horse-power each, which is more than is now derived from the celebrated Lachine Rapids. The contract price was in the neighborhood of \$50,000.

Another important contract recently received by the above firm is one from the Spanish River Pulp and Paper Company for the pumps for their new million dollar mill. The contract includes two 10-in. turbine pumps for the water supply, one 6-in. turbine pump for fire purposes, two 8-in. volute pumps for

carrying off the white water and two 10-in. turbine pumps for carrying the ground wood stock.



### CARLOAD OF IMPROVED WARREN PATENT DOUBLE DRUM WINDERS.

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The Ticonderoga Machine Works, Ticonderoga, N.Y., have recently made a shipment of one carload of improved Warren patent double drum winders to Willamette Pulp and Paper Co., Oregon City, Oregon.



The Black-Clawson Co., of Hamilton, Ohio, have sent us a catalogue describing their paper and pulp mill and other machinery. This firm's facilities for building paper machines of all sizes, including the largest, are beyond question, their trade extending throughout the world. They also build Jordan engines, rag cutters, fan, stuff and suction pumps. This catalogue, which is particularly well printed and illustrated, describes various kinds of machinery as closely as they can be described. Those interested should write for a copy.



The Holyoke Machine Co., of Holyoke, Mass., write: "We have already furnished a considerable amount of wood pulp and paper mill machinery for Canadian use, and at the present time we are making a second lot of grinders for the Anglo-Newfoundland Development Co.; also all of the grinders for the mill of the East Canada Power and Pulp Co."

**PAPER MAKERS' POCKET BOOK.**

A new and enlarged edition of the "Paper Makers' Pocket Book," by James Beveridge, has been issued by McCorquodale & Co., Coleman Street, London, Eng. There was a steady call for the first edition after it was out of print, and the new edition, containing as it does much new information, especially relating to the sulphite, soda and sulphate processes, will place the work among the things indispensable to the mill owner and manager. The present edition contains 211 pages packed with tables and technical information on the various processes of manufacture as well as relating to the commercial end of the paper industry. The author is well known to our readers as founder and manager of the New Brunswick Pulp and Paper Co.

**CANADA PAPER CO.**

The annual general meeting of shareholders of the Canada Paper Co., Limited, was held at the company's office, 70 McGill Street, Montreal, on March 14th. The president's report showed that the past year was a highly prosperous one, and that large reductions had been made in the company's indebtedness both to banks and otherwise. He congratulated the shareholders upon the prosperity of the past year, but stated that, should the proposed reciprocal arrangement go into effect, it would seriously affect the book and wrapping end of the company's business.

The old board of directors was unanimously re-elected as follows: Joseph Kilgour, Toronto; Sir H. Montagu Allan, Hugh A. Allan, H. S. Holt, C. R. Hosmer, H. Markland Molson, Hon. Robert Mackay, Montreal.

**RECIPROCITY AND PAPER.**

Mr. J. S. Willison, Editor of the Toronto News, has done yeoman service in pointing out the dangers and entanglements to which the proposed Reciprocity agreement subjects Canada. His views on its effect on the paper industry follow:

Two months ago the terms of the trade agreement were made public. One of the clauses to which Mr. Fielding and Mr. Paterson chose to pledge the honor of the Canadian people, asserted that in the event of the withdrawal of the Provincial embargoes on pulp-wood now maintained by Ontario and Quebec, the Federal Government of Canada automatically agreed to admit free of duty all grades of paper not over four cents per pound in value. The United States "reciprocated" by striking out its own duty on grades of the same denomination "if they are the product of private lands." The proposition was written in for the purpose of retaliating upon the Provincial Governments of Ontario and Quebec for their bold attitude towards domestic conservation. Although at a careless glance the bargain in paper does look like getting something for nothing, it is intrinsically a vicious error which no Government and no south-bound deputa- tion was called upon to invite or permit. Nor is it an error from a certain sectional point of view which has yet to be driven to practical proof; the effects of it are already irreparable, long before the pact goes into actual operation.

What has resulted from the announcement of the reciprocity agreement is briefly this: A large proportion of the paper makers of Ontario, having read between the lines the promise of a catastrophe, are openly preparing to face complete free trade in paper of restricted value. While theorists outside the ranks of the paper makers may regard such a fear as unjustified and premature, those whose industries and fortunes

are at stake declare that within one year the United States manufacturers, finding their market cut into by Canadian "raiders" while denied the right to cross the boundary themselves, will fight the intruder with an indirect and wholly effective weapon. They will compel their Government to withdraw the duties on paper produced from Crown lands in Canada. Such action would instantly render the Provincial embargoes partially inoperative and by the clauses of the reciprocity agreement would throw open wide the doors of Canada to American paper combines. The agreement so specifies and there has been no attempt to cloud its significance. The moment the United States Government cares to remove all duties from both Crown and private lands, Canada must, under the agreement, follow suit to the letter, thus establishing free trade in a branch of manufacturing, contrary to every assurance and boast of Sir Wilfrid Laurier.

Even those adherents of the Federal Government who find the security of their paper enterprises undermined for no reason other than ignorance, excuse their political commander by explaining that he was badly advised; that the extent of reciprocity in paper should have been at the outside three cents and not four; that Mr. Fielding and his colleague misunderstood the conditions of the industry, but know more about it since. This is the best defence that can be made of the paper clauses except by those sophists whose first qualification is that they know nothing whatever about it. Uneasiness and alarm prevail throughout many branches of manufacturing, but nowhere quite so intense as in the industry of paper making. It is not that a theoretical danger lurks in a more or less uncertain contingency, but that it has already come and by an act of a supposedly loyal and sagacious Government.

Meanwhile those who have spent their lives and fortunes in claiming the markets of the Dominion are determined

not to surrender their advantage without a struggle. During the past month scores of thousands in money have been spent by paper mills of Ontario for improved machinery. This might argue expansion under a free American market, if there was not written across it the determination to contest the Canadian market when free trade in low price papers shall presently be declared. Instead of a natural and normal business development, the sudden activity of the Ontario and Quebec paper mills is an unwilling and somewhat chaotic adjustment of prosperous conditions to meet an unexpected and tricky enemy. To expect victory for Canadian interests under the banner of free trade is to confess ignorance of the vast difference in the state of the business on the two sides of the line, and to expect what few practical paper men would dare to count upon. In this single example, patriotic Canadians will discern what insidious forces are working beneath the easy language of the reciprocity compact towards the goal of disintegration and confusion.



#### PULP AND PAPER MARKETS.

Toronto, April 10, 1911.

All branches of the paper trade seem to be well employed. The activity noticeable during the last few months is particularly evident in the news print department and the trouble has been to keep up with orders. In the book and writing departments of the industry there is not so much rush of orders as was indicated earlier in the year, the Reciprocity proposals having caused some publishers to delay sending in their requisitions. But on the whole, no serious complaint can be made. Wrappings are still dull and cutting of prices goes on almost unabated.

The outstanding feature of the market is the scarcity and high price of ground wood. Owing to the persistent

(Continued on Page 66.)



# The Pulp <sup>AND</sup> Paper Magazine of Canada

Vol. 9—No. 5.

TORONTO, MAY, 1911

Canada \$1 a Year  
Single Copy 10c.

## Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

**Subscriptions:** Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage, \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required, four days earlier. Cuts should be sent by mail, not by express.

**BIGGAR-WILSON, Ltd.**

**PUBLISHERS.**

Offices, Confederation Life Building,  
Toronto, Canada.

Western Representative, John MacLean, 417  
Grain Exchange, Winnipeg. Tel. M. 4636.

### NOTICE.

The June issue of the "Pulp and Paper Magazine" will be published on Tuesday, June 6th—one week earlier than usual. Advertisers wishing to make changes in their announcements will oblige by sending in copy accordingly.

### UNITED STATES PUBLISHERS AND PRESIDENT TAFT.

An enthusiastic reception of President Taft by the American Newspaper Publishers' Association was a foregone conclusion. If there be one class of people in the United States who should be sat-

isfied with the Government's reciprocity proposals it should be the publishers of the big American dailies. In fact, it may be said that the pact is their work. And herein is exemplified their selfishness, extraordinary in view of those responsible for the proposed legislation not noticing it or placing the publishers' request at its true value. For, while practically every class in the United States, as well as in Canada, that reciprocity touches at all is apt to be disturbed or hurt, the newspaper publishers are benefited. They get, or hope to get, a large percentage of their cost of production chopped off, while in return they give nothing whatsoever. Or do they give political support? And is that why President Taft does not "notice" the selfishness of a single class asking for free trade privileges in a protectionist country.

But, if President Taft's utterances were enthusiastically received by his auditors of the Associated Press and the American Newspaper Publishers' Association, assuredly no such enthusiasm is due from the Canadian readers of his speech. Perhaps it is worthy of all the more attention. Certainly it confirms the fears of those in this country who see in the ratification of the reciprocity proposals, the confirmation of their worst fears regarding the snatching away from

Canada of its most valued natural resources, and regarding the tendency of such a policy towards a denationalizing of the Dominion, and a loosening of the ties which bind her to Great Britain.

To refer first to the latter point, what more has been said by the most ultra-imperialistic of Canadian objectors? What can be stronger or more ominous than the following words by President Taft:—

"I have said that this was a critical time in the solution of the question of reciprocity. It is critical because, unless it is now decided favorably to reciprocity, it is exceedingly probable that no such opportunity will ever again come to the United States. The forces which are at work in England and in Canada to separate her by a Chinese wall from the United States and to make her part of an Imperial commercial band reaching from England around the world to England again, by a system of preferential tariffs, will derive an impetus from the rejection of this treaty, and if we would have reciprocity with all the advantages that I have described, and that I earnestly and sincerely believe will follow its adoption, we must take it now or give it up forever."

That Hon. Clifford Sifton and other Canadians who feel strongly about the adoption of the reciprocity agreement have good reasons to fear its probable effect upon our natural resources is amply proven by one of Mr. Taft's own chief arguments in favor of his country adopting the agreement:—

"Another and a very conclusive reason for closing the contract," said Mr. Taft, "is the opportunity which it gives us to increase the supply of our natural resources, which with the wastefulness of

children we have wantonly exhausted. The timber resources of Canada, which will open themselves to us inevitably under the operation of this agreement, are now apparently inexhaustible. . . . There are other natural resources, which I need not stop to enumerate, which will become available to us as if our own if we adopt and maintain commercial union with Canada; and this is one of the chief reasons that ought to commend the Canadian agreement to the far-seeing statesmanship of leaders of American public opinion."

"Commercial Union with Canada" may sound well in American ears, but it does not suit Canadian ideas in the least.



#### SWEDISH PULP IN AMERICA.

The rumor prevailed in Montreal last month that a Canadian firm had placed an order for ground wood pulp in Sweden to the extent of 100,000 tons for delivery under contract. It has turned out that this order was given by a United States firm, and that the amount was 50,000 tons. It is understood that this pulp is for the International Paper Co. There have been large importations of chemical pulp into the United States both from Scandinavia and Germany recently, but so respectable an order for mechanical pulp is something noteworthy, and seems to indicate that the scarcity and high cost of pulp in the United States is now a condition of permanence. If the supplies of pulp and wood boasted of were to be had in the domestic market they would have been forthcoming since the recent era of high prices. One reason, just this season, is

because of low water in the west and east, which has prevented the production of a large supply; but this condition of low and uncertain water is gradually becoming a permanent one owing to the stripping of the forests, and the steadily rising value of water power for other industrial purposes puts the future probability of cheap pulp in the United States further and further away. Any large and regular supply of Scandinavian mechanical pulp to the United States market, is not likely to develop from this beginning, because the reasons why Sweden and Norway are selling pulp here are exceptional—first, because of the recent over-production and heavy stocks, and second, because some of them are forced to dispose of their stocks by pressure from the banks and loan agencies. When these surplus stocks are cleared, the European market will absorb the normal supply of Scandinavian ground wood pulp, and the United States paper mills will have then an increasing supply from Canada.



#### **COST IN U.S. AND CANADA.**

One of the first things the new tariff board of the United States Government was asked to do was to report on the cost of producing pulp and paper in Canada and the United States. This board has not fully gone into all classes of paper, but it has reported that so far as news print is concerned, the Canadian maker can produce it at \$4.14 less per ton than the United States maker. The present duty on that grade of Canadian paper going into the United States is \$3.75 per ton, leaving a net advantage to the Canadian maker of 39 cents. Seeing that many Republicans as well as most Democrats have voted

to put news print on the free list by the reciprocity deal, "Paper," of New York, asks what has become of the Republican doctrine that the domestic manufacturer was entitled to a protection at least equal to the difference between the cost of production at home and abroad? It thinks that just now reciprocity means putting paper on the free list in exchange for newspaper support for office.



#### **MR. GRIGG'S REPORT.**

Mr. Richard Grigg has established his position as a writer of what may be called "classic" literature in the line of trade reports. In the way we mean, the term "classic" by no means signifies old or out-of-date, but that the blue books issued through him for the Imperial Government on the subject of trade relations with the Dominion are so full of "meat" and present it in such a clear, concise, yet comprehensive manner that they are classically ideal in form and matter. One recently to hand confirms the eulogies passed by all authorities on the first, which was issued in 1907.

Mr. Grigg's remarks on the Canadian market and its possibilities of expansion stir the reader's imagination, as well as his power to grasp the facts presented. Perhaps it is this innate quality of Mr. Grigg's presentation of data, so often made dry-as-dust by the Government statistician, that makes his contributions to trade literature so peculiarly valuable. He considers that the Canadian market as a field for present and future British trade is governed by certain conditions which give to the economic life of the Dominion a character of its own. Canada has for a decade past been undergoing, and seems des-

tined to undergo for a considerable period, a great industrial and financial expansion. This phenomenon is not comparable to the mere alternation of good times and bad, of inflation and restriction, the periodicity of which has been for generations past a commonplace of economic discussion. An expanded market due to the incidental occurrence of "good times" is often a cause rather of apprehension than of confidence to the manufacturer and trader as it suggests rapid gains and the utilization of the present without counting upon the future. The trader makes hay while the sun shines, well aware that an overcast and clouded sky may at any moment check his activities. Present opportunities he utilizes to the full, but anything in the shape of larger capital expenditure, of patient preparation for the future, of immediate sacrifice for later gains, he is disposed to regard with the utmost caution. In Canada, however, the case is different; the expansion is not an incident, but a permanent condition of economic life, the existence of which cannot be emphasized too highly. Mr. Grigg then proceeds to analyze the causes of the fixed character of the reasons for this expansion. Among these causes may be mentioned briefly the following: the seeking of new fields of settlement for the redundant population of Europe and of new avenues of investment for its accumulated capital; the development of transportation facilities, which has thrown open vast grain areas just when the world needed increased production; possession by Canada of innumerable water-powers just when electric science had become sufficiently perfected to use them to advantage; its forest resources;

the growing tendency to develop territory towards northern limits rather than purely east and west. These points are primarily connected with the basic fact of Canada's marvellous natural resources, but the scope for investment in manufacturing enterprises and other features springing from the above are features to which Mr. Grigg gives due prominence.

Naturally enough the subject touched on as being of most importance in the report under notice is the prospect for developing 'Great Britain's trade with Canada, and, though Mr. Grigg tells the British exporter a few home-truths, yet he is by no means pessimistic concerning either his ability or his chances in Canada compared with his American and foreign rivals. One paragraph under this head we will quote and must then leave the report to speak for itself:—

"Although British trade with Canada in manufactured goods may thus be said to be holding its own, and even gaining ground against its American rivals, there are various lines of goods in which this is not the case. Where this is the case, it is not usually to be attributed to the lack of quality of British goods, but to the failure to adapt them specially for the Canadian market, and to push the sale of them by those energetic methods of advertisement and personal contact in which certain of Great Britain's rivals excel. With a somewhat closer attention to methods of sale, and to the particular requirements of the market, there is no reason why the British trader should not share the field at least in equal proportions with the American. Attention may here be directed to the fact that the whole position of trade is intimately dependent upon



shipping facilities. No amount of preferential duty, and no alacrity on the part of the British merchant can avail to hold the Canadian market if the conditions and cost of shipment are such as to militate against the supply of the market from overseas. It is, therefore, necessary for all who are interested on both sides of the Atlantic in the maintenance and extension of British trade to see to it that ocean freight rates are kept at a point which will not imperil the future importation of British goods."

Speaking of the imports of British paper into Canada, which he notes is progressing, Mr. Griggs points out that one great cause for complaint in Canada is that some British houses deal both with the wholesale and retail trade direct. Business should be conducted either with the wholesaler or the retailer, but not with both. Another point leading to dissatisfaction is that, while the Canadian and American standard is 500 sheets to the ream, many British houses make only 480 sheets to the ream.



#### THE SITUATION REVIEWED.

It is well at this juncture to review the situation in the pulp and paper industries of Canada. Both pulp and paper mills have been busy since the beginning of the year, and so far as one can see, are likely to continue well employed for the rest of the year, with good prospects for the new mills in course of construction. In the United States, unfortunately, present trade is poor, and the outlook very discouraging in every branch of the domestic pulp and paper trade, except that of writing and other high-class papers.

What are the causes of this contrast in the two countries? In the case of Canada the general commercial movement due to the railway construction now in hand, and the rapid peopling of the West with new settlers, would alone account for an expanding demand for paper. But apart from this there is a growing conviction that the proposed reciprocity arrangement, even if it goes into effect, will not work in its present shape, though it may give much trouble and cause much needless expense in the adjustment and re-adjustment of our mills to the altered conditions, if the treaty is enforced and then amended. The serious feature of the bargain is that if it is put into force, its method of operation will then be subject to the rulings of the United States Board of Customs Appraisers, whose interpretations have the force of an Act of Congress. Suppose, for example, the treaty is adopted by both governments. The situation then is that the present Crown lands regulations would prevent the free importation of pulp and paper under four cents a pound from Ontario, Quebec, and New Brunswick. Matters would then stand as they are to-day. But suppose the Customs Board, for political, economic, or judicial reasons, should decide that Crown lands in these provinces are not to be considered a political division of the province, then the gates are open at once, and the pulp and paper mills are suddenly brought face to face with the new condition and all its revolutionary consequences to the industry in the United States. And though there might be no such ruling, there is ever held out by the malign influences of a capitalistic lobbyist, the temptation to interfere by subterranean means with

the legislation of the provinces. We have every confidence in the integrity of the present administration of these three provinces, but we know what was alleged to have been done with American money in one of these provinces in the near past.

Turning to the United States pulp and paper industries we find a peculiar situation, which, if the government of that country were moved by economic reasons, and not by perverted notions of the influence of the daily press, would be handled with caution and sympathy for a great industry now in a new situation comparable to that of the Israelites with the host of Pharaoh behind them and the Red Sea ahead. If protection is right to one industry it is right to the others, but the present Congress has done what Cleveland denounced as most unfair, the bartering away of one man's protection for the advantage of another. The troubles of the United States pulp and paper makers due to the exhaustion of cheap supplies of wood, the rising cost of water-power, and the changing conditions of making chemical pulp are enough in themselves without having to bear the much harder burden of discriminatory legislation and the hands of a power which the people have been taught to regard as the upholder of righteousness and equity,—the press.

The present position of the ground wood pulp and news print industry of the United States, is one of increasing dependence upon Canada; while that of the chemical pulp industry is one of increasing dependence on Scandinavia and Germany. While this gives prestige to the Canadian industry of the first-mentioned class, there is no disposition among manufacturers on this side to

boast, but rather to wish that the critical time may be tided over without bringing anything like a collapse or panic in the United States market. On the ground of sympathy and fair treatment alone the Canadian pulp and paper manufacturers should use their best endeavors to discountenance an agreement which if put into force will bring the industry of the whole continent into a condition of confusion, if not of collapse.



#### THE UNITED STATES PAPER INDUSTRY.

The United States census report of the pulp and paper industry, an abstract of which appears on another page, shows some very interesting features. First is the comparatively small increase in the number of pulp and paper factories in the United States during the last decade. In 1899, these numbered 763, while at the end of 1909 they were 787, or only 24 more. The most noteworthy point, however, in connection with these establishments, was the great increase in value of their output, which \$127,327,000 in 1899, had become \$267,869,000 in 1909. Against a merely nominal gain in number of mills, their product is more than double in value. This shows not only a gain in size, but in efficiency of plants. But, in spite of this, the return on the capital invested in the paper industry shows a steady decline. In 1899 the capital invested was \$46,321,000, from which the value of output was \$127,327,000, as above. In 1909 the invested capital had grown to \$107,607,000, while the product was \$267,869,000. Two reasons may be given for this: Greater cost of raw material and labor, and, sec-

ondly, a comparative reduction in prices. In the case of news print this has particularly been the case. In 1899, the production of roll news was approximately 455,000 tons, worth \$15,750,000; in 1909, 1,091,000 tons, worth \$42,807,000, or say \$34.62 and \$39.23 per ton respectively, for the factory value, not including selling and distributing expenses, which, without doubt, have increased materially. In the first year, however, the prevailing price to the consumer of news was between \$50 and \$58 per ton, while in December, 1909, it was about \$40 or \$42 per ton. It is clear, therefore, that profits in the news print paper manufacturing business are materially less to-day than they were ten years ago. Book papers increased in the decade 104 per cent. in quantity and 120 per cent. in value. Some kinds of wrapping papers show a decrease in production, likewise a noticeable increase in the cost of same.



#### RECIPROCITY.

##### **The Treaty of 1854-66—How it was Negotiated and Why it was Annulled.**

(Continued).

##### **Force and Free Will.**

This measure illustrated the futility of force as a means of cultivating the friendship of a nation, and the speech of the Hon. Joseph Howe, of Nova Scotia, at the Detroit Convention should have been enough to indicate the response that would be given to the freezing-out process. After pointing out the unfair advantages that were taken by the United States, and not contemplated when the treaty was signed, in regard

to the fisheries, Mr. Howe showed that the blockading of one-half of the seaboard of the United States had cut off a large part of the benefits that should have accrued to the Maritime Provinces during the war, while the United States got the benefit of the trade of the whole provincial coast during the entire war period. Turning to the war, he contended that in the main the sympathies of the Canadians and British were with the North, and cited instances of many young men from his own province who had fought in the northern armies. A colleague of his own had held the rank of lieutenant in a Massachusetts regiment, with only one leg to take back home instead of two. He then proceeded:—

“In my own family and person I have suffered not a little by this unhappy rebellion. I have five boys, and one of them took it into his head to enter your army. He has now been nearly two years in the 23rd Ohio Regiment, and has fought in all the battles of that regiment during this period. He was in both the great battles under Sheridan, in which General Early’s forces were scattered and the Shenandoah valley cleared. All the personal benefit that I have derived from the reciprocity treaty, or hope to derive from its renewal, will never compensate me or that boy’s mother for the anxiety we have had with regard to him; but when he produced his certificate of his commanding officer, showing that he had conducted himself like a gentleman and had been faithful and brave, it was some consolation for all our anguish to know that he had performed his duty. (Enthusiastic applause.)

(Continued next month.)

### EDITORIAL COMMENTS.

It is an admitted fact that life in America is held cheaper than in other civilized countries. As a result accidents detrimental to life and limb are a more common occurrence on our railroads and in our factories than is the general rule in England, for example. Employers' liability insurance is a good thing, but not everything. The employer's moral liability looms large even in spite of the fact that in many cases it seems necessary to prevent employees from exposing themselves to unnecessary risk, even by main force. Some appear to delight in exposing themselves to danger, even when all possible precautions may have been taken by their em-

ployers to guard against the same. In New York an organization has been formed, under the name of the Industrial Safety Association, having for its object the prevention of accidents to life and limb of those engaged in manufacturing industries. In connection with this association there is a museum of safety where all sorts of safety devices covering the widest possible range of industries may be seen and studied. Another plan of the society is to give lectures either publicly or in factories interested upon the best methods of insuring the safety of workmen. It is also issuing a magazine, called the *Journal of Industrial Safety*, having the same purposes in view. Pulp and paper manufacturers are not among those least interested in the purpose of such an organization.

The hopeless tangle into which the proposed reciprocity pact seems likely to plunge the paper industries both of Canada and the United States seems to become the more pronounced the more intently it is studied. The *Paper Trade Journal* pertinently asks: "If we really must have free trade, why not have the genuine article and not a subterfuge or imitation, or a half-measure?" "H," adds our contemporary, "under the terms

of the reciprocity agreement free access to the Dominion is denied to rag paper, the fault will not be so much with the Canadian provinces as with certain terms of our own tariff law, imposing a countervailing tax upon paper made from wood cut on Crown lands. Our Government says to Canada, 'where your provinces raise their embargoes upon the export of Crown land wood, we shall take off our countervailing duty.' The Canadian Government replies: 'when you abrogate your countervailing tax you may have free access to our market for all grades of paper.' If we are bound to admit without duty Canadian pulp and paper made from wood cut on free lands, why not take off this countervailing tax on Crown lands wood? Let everything come in free, and so secure from Canada a free market for our fine writings."

Whichever way one looks at this proposed reciprocity pact, one is confronted by a new sort of muddle. It only illustrates the mischievous weakness, as we have pointed out before in these columns, of legislation which sets up one branch of an industry against another branch, and gives an advantage to one by taking from another.

German commercial interests are up in arms against the proposed reciprocity agreement between Canada and the United States, and are trying to get into touch with both countries for better trade relations. It is understood that the German Government has already demanded the withdrawal of its minimum rates extended to the United States at the time of the ratification of the maximum and minimum agreement between those two countries, on the ground that it was implied in that agreement that the United States would not give to any other country better rates than those accorded to Germany. In the same way, it is suggested that, if reciprocity passes, negotiations with Canada will probably have to be re-opened by Germany, as the status of German exports in Canadian markets would be materially altered in competition with United States products.



## Trade and Manufacturers' Notes.

### MOORE AND WHITE COMPANY.

The Moore and White Company, manufacturers of paper machinery, Philadelphia, inform us that they have received the following orders for "Moore & White" Winders since January 1st, 1911: Hartford City Paper Company, 120"; W. C. Hamilton & Sons Co., 82"; West Virginia Pulp & Paper Co., 102"; Northern Paper Mills, 96"; Hammermill Paper Co., 132"; Bryant Paper Co., 136"; Fox River Paper Co., 84"; The Bagley & Sewall Co., 156"; West Va. Pulp and Paper Co., 84"; Crocker Burbank Co., 125"; Crocker Burbank Co., 104"; West Virginia Pulp & Paper Co., 152"; Lincoln Paper Mills, 112"; Bayless Pulp & Paper Co., 132"; Bayless Pulp & Paper Co., 112"; Scott Paper Co., 86"; American Writing Paper Co., 110". Up to the present date, they have supplied over one hundred of these winders to many of the leading paper makers of this and other countries. They are also placing on the market a Lay Boy, and are building, at the present time, Lay Boys for the following mills:—The Dill & Collins Co., 6; the Hammermill Paper Co., 3; the Fox River Paper Co., 1; the Nashua River Paper Corporation, 1; the West Virginia Pulp & Paper Co., 1. These Lay Boys are designed to lay the sheets of paper on a table which lowers continuously, as the paper is laid upon it. The lowering device is controlled by the top of the paper. The table works automatically, keeping the top of the paper always the same height. The top of the paper is at all times 46" in height from the floor. The table can be lowered to within 10" of the floor, and the paper loaded onto a truck, thereby using the ordinary trucks 10" in height and upwards, to receive the table. The paper can be piled 36" in height, or less as desired. The table is constructed on adjustable and removable boards, 10"

wide, and of various lengths to suit the size of the sheets. The space required for the Lay Boys is not more than the table now used in connection with cutters.



### JAMES BERTRAM & SON, LTD.

We have received from James Bertram & Son, Ltd., Leith Walk Foundry, Edinburgh, Scotland, copies of their Paper Makers' Catalogues. This firm are well known among the paper mills in all parts of the world, their energies being almost entirely devoted to the making of machinery for this purpose. Every new invention relating to paper-making machines is closely investigated, and they have been the first to introduce several of them. Any paper manufacturer desirous of developing new mechanical ideas in this line would do well to apply to James Bertram & Son for their advice and practical assistance, their long experience and high reputation rendering such advice peculiarly valuable. The catalogue gives an exhaustive and illustrated description of the more important machines used in paper mills. Of those of a minor character, particulars can be had by direct enquiry. Prices, drawings, and estimates, etc., can also be readily obtained.



### TRADE AGENT POINTERS FOR CANADIAN PAPER MAKERS.

Newspaper is not made in Australia, hence there is no market for pulp-wood and ground pulp. The principal paper mills are in Melbourne, and, while the samples of sulphite pulp submitted to them by Canadian manufacturers have been of satisfactory quality, the prices could not meet European competition. Canadian sulphite was quoted at the short ton (2,000 pounds), but the price

per ton was higher than the sulphite from Norway, which is sold on the basis of the long ton (2,240 pounds). A shipment of unbleached sulphite pulp, by steamer from Norway, was recently landed, ex-ship in Melbourne for £7 13s. 6d. (\$37.35) per ton of 2,240 pounds, plus marine insurance only. The steamer freight must have been very low, but as the pulp was sold delivered ex-ship in Melbourne (plus insurance) the rate of freight could not be ascertained. Bleached, ex-ship in Melbourne for £7 13s. 6d. limited demand, was recently landed at £10 12s. (\$51.59) per long ton, plus insurance ex-ship Melbourne.

\* \* \*

Included among several products of wood, for which there is a market in Bahama Islands, are wood fibre and wood pulp boards. Wood fibre, which finds an outlet for various commercial purposes, is at present obtained from Sweden, and also from certain sources in this country. This fibre is supplied to users packed in bales of 1 cwt. (112 pounds), and quoted in lots of 5 tons. As a variety of grades are used, it is hardly necessary to say that samples of the fibre offered for shipment form an indispensable precedent to securing business. In regard to wood pulp, it may be mentioned that the import of this product is largely in the hands of importers situated at Manchester and London. In this particular district, however, an active trade is done in wood pulp boards of the following sizes: 22 x 32-in., 20 x 30-in., 20 x 25-in., 24 x 38-in., 25 x 40-in., 28 x 40-in., 30 x 40-in. At the present time these boards are obtained from Scandinavia and Finland, but there is no reason why Canadian manufacturers should not be able to bring themselves into evidence in supplying these goods.

\* \* \*

J. M. Mussen, writing for Leeds and Hull, England, says a market is to be found there for wood fibre and wood pulp boards. Wood fibre is at present obtained from Sweden and from certain sources in England. This fibre is sup-

plied to users, packed in bales of 112 pounds each, and quoted in lots of five tons. A variety of grades are used. Samples of the fibre offered for shipment, therefore, are indispensable to secure business. He says the importation of wood pulp is largely in the hands of importers at Manchester and London. In this district an active trade is done in wood pulp boards of the following sizes: 22 x 32 in., 20 x 30 in., 20 x 25 in., 24 x 38 in., 25 x 40 in., 28 x 40 in., 30 x 40 in. These boards are now obtained from Scandinavia and Finland. Mr. Mussen advises that Canadian manufacturers could supply some of them.



—Grippeling & Verkley, 74 Damrak, Amsterdam, Holland, wish correspondence from Canadian manufacturers of printing and wrapping paper.

—S. Nicol has been appointed manager of the wood pulp department of Berner & Nielsen, Gracechurch Street, London, England. Mr. Nicol succeeds Mr. Rustad in this capacity.

The St. John Pulp and Paper Co. (Stetson, Cutler & Co.) have, we understand, arranged terms with the city council of St. John for the continuance of the lease of the water-power at Mispic. The company, however, will not start up the mill till the reciprocity question is settled, probably not until early next year at any rate.

The laboratory in Montreal of Dr. J. T. Donald, analytical and industrial chemist and of T. L. Crossley, who manages the pulp, paper and fibre department, has been removed to 318 La-gauchetiere Street W. That building has been purchased, and will be equipped in every way as an up-to-date consulting chemical and industrial laboratory. Special arrangements are being made to equip the pulp and paper department, as there should be a large opportunity for an up-to-date plant of this character in Montreal.

## LITERARY NOTES.

John W. Foster, who was at various times United States Minister to Mexico, Russia and Japan, and who succeeded Blaine as Secretary of State, has given an enlightening study of United States foreign politics from the American Revolution down to 1876 under the title of "A Century of American Diplomacy" (Houghton, Mifflin Co., Boston and New York). Mr. Foster touches up with the pen of an artist the high lights of United States diplomacy, and the founders and subsequent builders of the American Republic move before us as heroes and men of intellectual might. About half of the book of nearly 500 pages deals with the history of the United States from 1776 to the close of the War of 1812-15. At many points the affairs of Canada are touched upon, and for this reason, as well as for its lucid style, it should find many students in this country. While not many Canadians will accept the author's views or deductions from events and controversies of the past, especially in such discussions as that of the joint high commission of 1871, in which the idea seems to be endorsed that the very existence of Canada as a separate nationality on this continent is a menace to the peace of the United States, yet it is well to understand what were the ideas of United States diplomats of the near past. We hope statesmen of both countries have got past such conceptions at the present time.

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"Self-Government in Canada." or the story of Lord Durham's report, by F. Bradshaw, D.Sc., of Brasenose College, Oxford, should be welcomed in Canada as the last word on that classic in the constitutional history of the Dominion. The author has naturally studied very closely the parts taken by the British actors in the drama, but considering that he has not visited this country, he has made but few trifling errors of detail in his very intelligent study of the events in Canada itself. It may fairly be said

that he has given us the most complete review of the events of this most important formative period of Canadian history we have. Most native Canadians can entirely endorse Mr. Bradshaw's opinion when he says: "With good reason do the Canadians cherish the memory of Lord Durham to-day." The author thus estimates the influence of Lord Durham's great work here: "While he lived a strong party in Canada decried him. It was because he dared to maintain, radical though he was, that there was something more holy than the wishes of an elected Assembly, much more so than those of a Government House clique.\* \* \* His report is the Magna Charta of the Dominion whose success is bringing about results to the Empire, we can yet foresee but dimly; we only know that there is a wider citizenship than that of a race merely bound together by ties of blood." This work of 414 pages is published by P. S. King & Son, Parliament Street, Westminster, London; price, 3s. 6d. net.

\* \* \*

The report of the Minister of Lands and Forests of Quebec for 1910, has been issued by the Provincial Government. The report of 257 pages contains many interesting notes of explorations by the land surveyors of a number of rivers containing water-powers, with reports on the survey of new townships. The province has now 175,000 square miles of forest reserves, and Mr. Hall, who reports upon them urges that they be maintained and extended. He also repeats the wise caution against forest fires. A very valuable feature of the report is a summary of the history of stumpage laws and regulations since the year 1763. Some illustrations show how the forestry work is being carried on in the province. The total receipts from "woods and forests" last year was \$1,033,895, of which \$734,953 was from stumpage dues, and \$242,708 from ground rents, there being an increase of \$350,000 of revenue over the previous year.

The fourth annual meeting of the American Peat Society, recently held for the first time in Canada, is fully reported in the Journal of the American Peat Society, published at Toledo, Ohio. This special number gives a good account of the experiments of Dr. Eugene Haanel, of Ottawa, president of the society, who shows the great possibilities of Canadian peat as a substitute for coal in generating power by means of the modern gas producer.

\* \* \*

The report of the Minister of Lands, Forests, and Mines of Ontario, for 1910 has been issued and contains interesting returns from the surveyors who are working in the new regions of North Ontario. The area and extent of the timber and water powers are treated of. It is satisfactory to note that under the enlightened policy of the Ontario Government earnest efforts are being made to provide a really effective system of protection against forest fires, such as may be a model to other provinces in the administration of Crown lands. The total revenue from "Woods and Forests" for 1910 was \$1,835,082, of which \$1,634,496 was in timber dues, \$92,396 deposits on account of timber sales, ground rent \$104,326, and transfer bonuses \$3,863. The total Crown lands disposed of during the year was 127,704 acres.

\* \* \*

The Quebec and St. Maurice Industrial Co. are now turning out about thirty tons of Kraft pulp at their new mills at La Tuque, Que.

The Ticonderoga Machine Works, Ticonderoga, N.Y., have recently made shipment of an improved Warren patent double-drum winder to the Astoroga Paper Company, Little Falls, N.Y.

## WATERPROOFING COMPOUNDS FOR PAPER.

— —

The following compounds render paper impermeable to water, etc.:—

No. 1. Preparation.—A strong, impervious parchment paper is obtained by thoroughly washing woolen or cotton fabrics, so as to remove gum, starch and other foreign bodies, then immersing them in a bath containing a small quantity of paper pulp. The latter is made to penetrate the fabric by being passed between rollers. Thus prepared, it is afterwards dipped into sulphuric acid of suitable concentration, and then repeatedly washed in a bath of aqueous ammonia until every trace of acid has been removed. Finally it is pressed between rollers to remove the excess of liquid, dried between two other rollers which are covered with felt, and, lastly, calendered. The product is suitable for diagrams.

No. 2. Compound.—Treat the tissue to be waterproofed with chloride, sulphate, or other soluble salt or salts of zinc or cadmium, in conjunction with ammonia, applied in the form of a solution composed of about 3 parts crystallized zinc sulphate or 3 parts of a solution of zinc chloride at 96° Tw. (47° B.), and about 2 parts of a solution of ammonia of sp. gr. 0.875. The paper which it is proposed to treat is passed through a cistern lined with lead, and specially constructed for this purpose, with an arrangement of rollers, so as to allow the material to pass through at a speed varying from 30 to 36 yards per minute, according to the thickness. In its passage through the liquor the material becomes perfectly saturated from the bath it passes through a pair of squeezing rollers which remove the superfluous liquor and harden it by compression. From the rollers it is next passed to a suspending apparatus, then hung along the room in folds in a temperature of 118° F. (43° C.) until it is sufficiently dry to be taken down. The rollers in the

(Continued on Page 70b.)



### CHEMICAL PROCESSES IN BLEACHING PULP.

Specialists have not as yet agreed whether hot bleaching is advantageous or not. For instance, Knosel regards the hot bleaching as preferable, and not damaging to the fibre; while Cross says that only cold bleaching ought to be used. The disadvantages of the hot bleaching can depend upon: (1) Loss of bleaching material, either as gaseous chlorine, or in form of chlorate; (2) lowering of the strength of the pulp.

Regarding (1) it is easy to see that in alkaline solutions no loss of chlorine is to be expected for theoretical reasons, as alkaline bleaching solution only will be changed from hypochlorite into chlorate at a higher temperature. Anyhow, hypochloric acid, as well as chlorine, can be formed in acid liquids, especially if the acid has been added in one place without sufficient mixing and dilution. It is always to be taken into consideration that the "bleaching smell," from which the presence of free chlorine so often is being judged, can be caused by organic chlorides and other—as yet unknown—substances formed during the oxidation of the encrusting substances. Chlorine could not be detected with moist iodide of potassium starch-paper in the air above the bleaching beater, when the bleaching was done in an alkaline liquid. The presence of the peculiar "bleaching smell" has only recently been reported, and has then been supposed to depend upon the formation of ozone.

The second possible cause of loss, through formation of chlorate, takes place when the pulp is heated. Anyhow, the loss here is not so important as could be supposed according to the theory. It is known that the rapidity of the transforming into chlorate is doubled for every increase in the temperature of  $7.5^{\circ}$  C. The transforming up to  $40^{\circ}$  C. is still very unimportant, which proves that the consumption of the bleaching chlorine in the pulp takes place quicker than

the formation of chlorate from the hypochlorite.

It seems to be usual to let in direct steam into the bleaching heater. The pulp will then be too much heated at the point of inlet for the steam, especially where the circulation is slow. It would certainly be more appropriate to heat the pulp with hot water at a fixed maximum temperature, instead of with steam. Still, the author is not sure that the heating by means of a coil with hot water can be made practically and economically. He believes, at least to judge from his experience with the small quantities used in his experiments, to have avoided any formation of chlorate through local superheating. A lead coil, fed with water of  $40^{\circ}$  C. maximum temperature, was therefore put in the bleaching beater. The water was heated in a copper coil with thermometer outside of the beater, by means of a Bunsen burner. The experimental beater allowed a maximum charge of only 3.5 per cent. if the pulp should be able to circulate, and consequently it is not quite sure that the same conditions would exist with pulp of 7 per cent. The experiments may, however, throw some light upon what actually takes place. Some remarks about the influence of hot bleaching upon the quality and quantity of the pulp will first be given, before describing the experiments. Hot bleaching could, for instance, cause a greater loss of fibres and a poorer quality; but, according to several experiments, the loss of fibres is normal. Before it was only possible to judge the strength of the bleached pulp by testing the paper made from it.

The author some time ago was able to prove that a superbleaching, a lessening of the strength, can be observed by an increase of the reduction capacity, depending upon the formation of oxycellulose or hydrocellulose, and that a comparatively simple, quantitative determination of the reduction capacity is possible. In experiments with hot bleaching it must, therefore, also be

tested if the pulp has a higher or the same reduction capacity as the cold-bleached pulp.

Seven hundred grams unbleached sulphate pulp with 200 litres of water consequently 3.5 per cent. of pulp, were ground in the beater mentioned before. The heating coil was put in place already before the cold-bleachings, but not heated. This was done because the coil caused a certain obstruction in the circulation, and it was desired to keep the velocity of the circulation always as uniform as possible. For instance, 1,700 cc. of a solution of chloride of lime, with 1.8 per cent. chlorine, were used during eight hours for bleaching. The liquid was afterwards filtered from the pulp and the chlorate determined in the filtrate. The pulp was dried at 25° C., after having been completely washed out, and its reduction capacity determined in the manner described above. The chlorate should first be determined through oxidation of a certain quantity of ferro-sulphate. An acid solution of ferro-sulphate is oxidized both by chlorine and by hypochlorine. If now the quantity of hypochlorite used is known (which can be determined volumetrically with  $n/10$  arsenious acid), so can that quantity of iron be calculated which has been oxidized by the chlorate. The quantity of chlorate should probably show an increase for hot bleaching. It was found, however, that determinations according to this method gave completely useless results, because the used bleaching solution contained organic substances, which counteract the oxidizing influence of the chlorate through reduction.

Another method of determination must therefore be found. The following way to execute the analysis was found to be practical. Any hypochlorite still present in the filtered bleaching liquid is destroyed with peroxide of hydrogen. Nitrate of silver is afterwards added, and the total amount of chlorine is precipitated as chloride of silver (also the chlorine derived from the hypochlorite). After filtration the solution contains the chlorate only. If ferro-sulphate now is

added, it will be oxidized to ferri-sulphate by the chlorate, which in its turn is changed into chloride. The chlorate-chlorine is found, if nitrate of silver is added to this liquid, and the chlorine is precipitated and weighed as chloride of silver.

Volumetric tests with chloride of silver did not give exact results. For instance, 50 cc. silver solution were used to precipitate the chlorine in 100 cc. of the liquid, which gave about 35.36 grams total chlorine, while only 30 cub. grams had been used.

If the quantity of silver, and consequently also of chlorine, used is supposed to be 100 for cold bleaching, so giving the hot bleaching 96, equals 4 per cent. less through formation of chlorate.

The chlorate-chlorine can also, as mentioned before, be directly determined. There was found in 100 cc. used bleaching liquid, 0.0538 gram chloride of silver = 0.0133 gram chloride. For 21 litres of the liquid, 2.79 grams chlorine and 27.7 grams chlorine were used in this case, a loss of 10.1 per cent. through the formation of chlorate.

The quantity of the chlorate-chlorine can be overlooked at the parallel experiment with cold bleaching. The percentage of chlorate in the normal chloride of lime is minimal, about 0.25 per cent., mostly nearly 0; only once 0.9 per cent. of chlorate were found in an old sample of chloride of lime.

The loss of active chlorine through the formation of chlorate is consequently about 10 per cent. The temperature of 40° C. is, therefore, already somewhat too high. The loss of chlorine at about 30° C. would be very unimportant, as the velocity of the transforming into chlorate, as before mentioned, is doubled for every 7.5° C. The bleaching liquid could consequently be heated up to this temperature without any danger of loss.

The reduction capacity of the hot and cold bleached pulp gave nearly the same results—i.e., for cold bleached, 2.77; for hot bleached, 2.86. From this can be

concluded that the hot alkaline bleaching is absolutely harmless to the pulp. It is still to be determined if the better quality of the pulp in comparison with the pulp bleached in acid solutions, balances the loss of chlorine.



### TRADE CUSTOMS.

The following trade customs have been decided on by the joint committee appointed by the American Paper and Pulp Association and National Paper Trade Association:—

1. Terms cash thirty days from date of invoice less discount of three per cent.

2. All orders for wrapping paper are accepted for wrapping purposes only, unless otherwise specifically stated.

3. All wrapping paper will be made on a basis of 24 x 36—480 sheets only.

4. All wrapping paper to be billed actual scale weight, including twine and wrappers, with a leeway of 5 per cent. over or under ordered weight. Wood or iron cores billed by weight or piece and returnable if agreed. Paper cores to be weighed with the paper and not returnable.

5. No paper to be made one weight and stenciled another.

6. No. 1 Manila. The standard basis of weight on No. 1 Manila shall be 35 pounds per ream of 480 sheets. Weights from 30 pounds to 34 pounds inclusive shall be 12½ cents per cwt. additional, and from 25 pounds to 29 pounds inclusive shall be 50 cents per cwt. additional above basis price.

7. No. 2 Manila. The standard basis of weight on No. 2 Manila shall be 35 pounds per ream of 480 sheets. Weights from 30 pounds to 34 pounds inclusive shall be 10 cents per cwt. additional, and from 25 pounds to 29 pounds inclusive shall be 50 cents per cwt. additional above basis price.

8. Dry-Finish Papers. The standard basis of weight on dry-finish wrapping papers shall be 30 pounds per ream of

480 sheets. Weights from 25 pounds to 29 pounds inclusive shall be 50 cents per cwt. additional above basis price.

9. Water-Finish Papers. The standard basis of weight on No. 1 water-finish fibre papers shall be 40 pounds per ream of 480 sheets. Weights from 35 pounds to 39 pounds inclusive shall be 15 cents additional above basis price.

10. Colors. No colors for less than 25 cents per cwt. additional above basis price.

11. Sizes under 150 square inches not less than 10 cents per cwt. additional.

12. Skeleton frames 10 cents per cwt. additional.

13. Tight frames 20 cents per cwt. additional.

14. Cases not less than 400 pounds 25 cents per cwt., and no case to be less than \$1.00.

15. Rolls under 6 inches in width 50 cents per cwt. additional.

16. Rolls under 9 inches in diameter 25 cents per cwt. additional.

17. Less than carload shipments shall take a f.o.b. mill price of 10 cents per cwt. less than the delivered carload price.

18. Orders accepted subject to delays brought about by strikes, accidents, fires or other causes beyond the control of the manufacturers.



In regard to the proposed change of route of the Welland Canal, now under consideration by the Dominion Government, the pulp and paper mills in Merittton and Thorold are deeply interested in that the change might adversely affect their water supply and transportation facilities. Assurances have since been given, however, that even in case a new canal be built in part, the mills would not be affected, the present canal being enlarged from Port Colborne to Welland. The canal was closed down for a while recently for repairs, the opportunity being taken advantage of by the manufacturers to give their mills a good overhauling.

## PAPER UNDER THE RECIPROCITY PACT.

The following article is contributed by A. G. Paine, jr., to the "American Economist":—

The paper clause in the "reciprocity" bill has been very cunningly drawn, and we can only infer by the Canadians or by the newspaper interests. The very object for which the President is working will be defeated if this bill becomes a law. Under this treaty all paper of a value of 4 cents or less at shipping points will come into the United States free if made from wood on which the Canadian Government places no export restrictions. This means that about 90 per cent. of paper of all grades manufac-

can obtain is the wood exportation of which is not prohibited by the Canadian Government or its Provinces. What will be the result under this treaty? The Canadians will use Crown land wood for paper which is to be sold in Canada. They will have no American competition for this Crown land wood, since this wood cannot be brought into the United States. For paper which the Canadian proposes to export he will use freehold wood, thus competing with the American, who can only buy freehold wood. The effect will be immediate, and will result in an advanced price for freehold wood; consequently the American will get less freehold wood than he is now getting, and what he does get will cost him more money. No induc-

		Duty into Canada.	Duty into U. S.
China clay .....		Free	\$2.50 per T.
Chloride of lime .....		Free	1-5c. per lb.
Feltings .....	Great Britain .....	30%	44c. per lb.
	Others.....	35%	and 55%
Alum .....	Great Britain .....	Free	¼ c. per lb.
	Others.....	10%	
Copper wire .....	Great Britain .....	17½ %	
	France .....	22½ %	45%
	Others.....	25%	
Aniline dyes .....		Free	30%
Ultramarine .....		Free	3c. per lb.

tured in the United States can be made in Canada and sent into this country free of duty. The present Canadian duty against the United States will remain in force so that the Canadian can dump his surplus paper into the United States at any price, free of duty, whereas the American manufacturer cannot ship his paper into Canada without paying the present Canadian duty, and this Canadian duty will be maintained until the United States permits paper made from Crown land woods, which woods cannot be exported, to come in free of duty.

It is a well-known fact that a large number of American mills south of the Canadian border draw their supply of wood from Canada. The only wood they

ment is offered to the Canadian to remove the present restrictions or prohibitions on the exportation of Crown land woods. In fact there is every inducement to the Canadian to maintain the prohibitions, inasmuch as so long as the prohibitions continue the present Canadian tariff on paper is maintained, and retaliation on the part of the American manufacturer prevented. This is not reciprocity. It means an open market for the Canadian and a closed market for the American, so far as paper and pulps are concerned.

The above table shows the tariff to the United States and to Canada on a few of the principal items used in the manufacture of book papers and similar grades.



Taking the consumption of the before mentioned materials for one company now operating in the United States, a company with the same output in Canada would have the following advantages over the American mill per annum (see table below).

It will, therefore, be seen that on the few articles enumerated the Canadian mill has an advantage of \$224,000 per year over the American mill operating under our present tariffs, and this does not include the saving derived from cheaper wood and water power.

It is a self-evident fact that instead of this treaty resulting in the conservation of our forests, it will have just the reverse effect. The American mills who are now engaged in conserving their wood lands at a heavy annual expense

be admitted free. There are over \$200,000,000 invested in mills making book and similar grades alone. These mills are operated with American capital by American workmen with American ideas. We have a population of 92,000,000; Canada, a population of something less than 8,000,000; yet it is proposed to remove our industry from the United States to Canada and to wipe out the plants that are now operating here. There are many millionaire newspaper owners; there are but two or three paper manufacturers in the United States who have individually made a million dollars in the paper business, and they get from 18 cents to \$1 per pound for the paper they turn out, and are absolutely protected under this treaty.

	Canada.	United States.	
English china clay .....	Free	\$2.50 per ton	\$75,000 00
Bleaching powder .....	Free	1/5c. per lb.	70,000 00
Alum .....	Free	1/4c. per lb.	21,000 00
Copper wire cloth .....	17 1/2 %	45 %	18,000 00
Aniline dyes .....	Free	30 %	5,000 00
Ultramarine .....	Free	3c. per lb.	
Colors .....	Free	3c. per lb.	
Paper-makers' feltings and jacketings	30 %	44c. per lb. and 55 %	about 35,000 00
			<hr/> \$224,000 00

Canadian advantage of \$224,000 a year.

to themselves will be forced to abandon this policy, and to turn their wood into money as cheaply and quickly as possible.

The object of this bill is to reduce the cost of news print paper to the newspapers. There is no disguising the fact that this is the object of the paper clause. The majority of American mills do not make news print paper, yet it is proposed to sacrifice them and the balance of the industry to satisfy the greed of the millionaire newspaper clique.

News paper to-day has a value of from 2 cents to 2.10 cents at the American mill; therefore, there is no rhyme or reason why all paper of a value of 4 cents or less at the Canadian mill should

The price of news print paper has steadily fallen, with the exception of instances during the few brief periods of great prosperity, from 30 cents per pound down to 2 1/4 cents, delivered, and on book paper from 40 cents per pound down to 3.4 cents at the mill. The paper in an ordinary novel which sells from 75 cents to \$1 costs less than 4 cents. Is this a tax on knowledge? The imports of news print paper from Canada have trebled under the Payne tariff, and importations of other kinds of paper and pulps have increased enormously. The American industry has already begun to retrograde. Many pulp mills and some paper mills are running only part time for lack of orders, and many new projects have been abandoned.

The American people should understand that this reciprocity agreement is being fostered in every way possible by the publishers of newspapers, and by some magazines, because it gives them free paper. The clique, one of the greatest trusts in existence to-day, is sending out to all newspapers in the country arguments in favor of it. The facts are not printed. The destruction of the paper industry in this country is the price paid for newspaper support of "reciprocity."

To sum up, How will the American paper manufacturer stand if this treaty is consummated with Canada? Those mills which secure their wood from Canada at the present time must pay a higher price for that wood; those who own their own wood lands cannot afford the heavy expense incident to conservation; they must cut their wood; they must sacrifice their forests to meet Canadian competition. Even if this policy is followed, their wood will cost them about double what the Canadian pays.

The Canadian is absolutely protected by his tariff in Canada. Canadian paper will be free into the United States so long as the Canadian prohibits the exportation of Crown land wood. Under these conditions does it seem reasonable that he will withdraw his prohibition? Owing to the lower tariff between Canada and Great Britain, a Canadian can secure his chemicals and materials at a lower price than the American which in itself is a profit. His labor as a whole is cheaper. He has practically every advantage against the American, and no disadvantage except the difference in freight on his manufactured product, and this difference is too slight to be embarrassing.

The Tariff Board, which has been making a thorough investigation of the manufacturing costs in Canada and the United States, has not made its final report. So far, its investigations have been confined to the news print branch of the industry, and it has not even com-

pleted the investigation of that branch. It has submitted some preliminary reports on the news print industry alone. These preliminary reports show that the difference between the American cost and the Canadian cost on news print paper is in favor of the Canadian manufacturer, and greater than the rates charged under the present Payne tariff. Our Government established a Tariff Board for the purpose of learning the truth. It is now proposed to make this agreement with Canada before the Tariff Board has made its final report. In short, it is an attempt to hang the prisoner while the jury is out.

Paper-making is one of the great industries of the United States, employing about \$400,000,000 worth of capital; 787 mills in thirty States produce annually 5,000,000 tons of paper, valued at more than \$300,000,000. The annual consumption of wood in the United States for paper-making is less than 2 per cent. of the total cut of wood for all purposes. It, therefore, cannot be said that the American paper-maker plays an important part in the destruction of our forests. He belongs to the one industry that is making a real attempt to conserve its timber lands in order to continue its business. Never in the history of this country has there been a more flagrant attempt to sacrifice an industry on which many thousands of our citizens are dependent for the benefit of a newspaper clique.



The Toronto "News" has been doing a useful and patriotic work in obtaining trial votes on Reciprocity in several of the most representative factories in Ontario. In Georgetown the vote at the Canada Coated Paper Mills, recently affiliated with the Georgetown Paper Mills, fifty-six ballots were cast, and of these only seven favored Reciprocity, the other forty-nine being solidly opposed. At the Barber Mill the vote was 27 against to 3 in favor.

### A BRITISH VIEW OF RECIPRO- CITY.

Referring to the effect upon British trade of the proposed Canadian-American reciprocity agreement, Lord Selborne, at a public meeting held in London recently, said: "The effect of the agreement with the United States upon the trade of the United Kingdom is the entire removal of the preference on British goods, of which Canada imports nearly £700,000 worth in 1909-1910. There is next a reduction of the margin of British preference on other British goods, of which Canada imports over £400,000 worth in 1909-1910. Thirdly, there is the extension to 'most favored nation' countries of the reduced Canadian rates on United States products, therefore whittling still further the advantage of our preference. Finally, there is the preference which Canadian products will enjoy over United Kingdom products in the United States markets. Imports of this class from the United Kingdom amounted in 1908-1909 to nearly £3,000,000. This is the first time that any part of the British Empire will enjoy preferential treatment in a foreign country to the rest of the Empire, and it is impossible for us to regard the precedent with satisfaction."



### EIBEL PATENT CASE.

The action of the European Eibel Company, Limited, vs. Edward Lloyd, Limited, London, has been decided in favor of the latter. The Eibel Company sought an injunction restraining defendants from using an alleged patent owned by plaintiffs, and also claimed damages for infringement.

The patent was registered in England in 1907 by the European Eibel Company, affiliated with the Eibel Process Company, of Boston. The object of the invention is to increase the output of the machine by causing the stock to travel by gravity by slanting the wires at the

wet end of the paper machine. Plaintiffs claimed that the Eibel process not only increased the speed of production, but gave a superior class of paper, and that the wear and tear on a certain portion of the paper making machine was materially lessened. For the defense it was contended that the Eibel process had not only been anticipated by previous patents, but that Messrs. Lloyd, in the years 1903-4, actually in their own works made experiments which in effect achieved the same results as Eibel's invention. Evidence was given to the effect that prior to 1907 the defendants had conceived the idea of slanting the wire to the extent of over 4½ inches, and this had the result of enabling the particular machine on which the experiment was tried to increase the running capacity from 300 feet to 450 feet per minute. Justice Warrington decided that these early experiments of Messrs. Lloyd established their claim to prior user, and ruled further that Eibel's specification of the patent was indefinite and did not sufficiently protect it. He gave judgment for the defendants with costs. The matter is looked upon by paper men, who were keenly interested, as finally settled, and the fact is of great importance, not only in England but throughout Europe and in Scandinavia, where the principle of elevating the end of the wire has been applied to a very large number of machines.



Congratulations are in order to Mr. R. O. Swezey, the well-known forest engineer of Quebec, and a valuable correspondent of this magazine, who a few days ago was married to Miss Harriet Whitcombe Watson, youngest daughter of Vice-Principal Watson, of Queen's University, Kingston, and a sister of Mrs. Alfred Goodearle, of Toronto. We wish the happy bride and bridegroom health, happiness and success.

The Northumberland Pulp Co. will shortly install two additional grinders, doubling their capacity.

## WATERMARKING OF PAPER.

By Sidney A. Kimber in *The Printing Art*.

For over six hundred years it has been the custom of papermakers to brand their product with designs and letters. It is not known if these ancient watermarks were intended to serve as trade marks or whether they were intended to convey another meaning. As the same or very similar devices were used by different mills, it does not seem that they were applied to identify any special product. It is interesting to note that from the first known device in paper, which appeared in 1282, and which took the form of a globe surmounted by the cross, many watermarks appear to be religious symbols,\* and some of these forms have survived until the present day. An instance may be cited in the present English mark in foolscap writing papers, where the emblem of the globe and cross appears at the top of the crown. The fleur-de-lis is another symbol which has survived through several centuries.

In Europe considerable attention is still given to the watermarking of paper, and by modern methods remarkable results are obtained. In America, however, manufacturers are apparently satisfied with a name or simple device "in line"; and such marks—trade marks, pure and simple—our papermakers advertise as standing for a guarantee of excellence of their product; yet, strange to relate, these markings are, with a few exceptions,† made the wrong way; that is to say, they read backwards when viewed from the right, or felt side, of the sheet. Not only is this very poor advertising, but it is besides the cause of perhaps fifty per cent. of American stationery being printed on the wrong side of the paper. The printer who

knows nothing about the making of paper, and hence cannot distinguish the difference between the right and wrong side of the sheet, naturally prints upon that surface where the watermark reads correctly. It is such a simple change to have the lettering and designs made the reverse of the present way that it is hoped manufacturers will so instruct the dandy makers when new rolls have to be prepared or old rolls repaired.

Paper is made by hand by dipping a mold into a vat containing pulp fibres suspended in water, which, after water had been drained off and the pulp which remained in the mold had been removed and dried, constituted paper in its crudest form. The mold is a fine wire screen fastened on to an oblong wooden frame, the wire being further supported by narrow wooden slats to prevent sagging. The earliest wire mold used was formed of closely-laid parallel wires, and these were held in place by other wires crossing at right angles and placed at regular distances apart. These cross wires are known as "chains," they passing over and under the other wires. Paper made in such a mold is known as "laid." When later, wire was woven into cloth,‡ and such wire sheets formed the bottom of the molding tray, paper made in it was known as "wove."

To insure a uniform size of the sheet of paper the mold is provided with a "deckle," a movable wooden frame, which fits around the rim of the mold. This frame prevents the pulp spreading beyond the size of sheet required, and gives to the four edges that form which is known as "deckle edge." In hand-made papers the deckle edges are usually less uniform than when machine-made.

The operation in making a sheet of hand-made paper is as follows: The mold, with deckle frame in place, is dipped by the workman into a vat containing pulp beaten up in water, sufficient material being taken up for the

\* See "A New Light on the Renaissance," by Harold Bayley; London, J. M. Dent & Co.

† Housatonic Bond and Barrington Bond made by B. D. Rising Paper Co.

‡ Woven wire cloth was introduced by John Baskerville, the famous printer of Birmingham, England, in 1750.



desired thickness of the sheet. As the mold is raised horizontally, it is given a double oscillating motion, which knits the fibres of the pulp and distributes them uniformly over the wire, the water meanwhile gradually draining through. The workman dipping the mold is known as the "vatman." He removes the deckle frame and places it over another mold, repeating the process. The mold itself is passed to the "coucher," who turns it over and presses it upon a woolen felt or blanket, to which the wet sheet of pulp adheres as the mold is removed. Another felt is spread upon this, and the process is repeated until there are a sufficient number of layers of felt and paper to form a "post." This post or pile is next subjected to heavy pressure in order to remove water and to produce a firm sheet of paper. After this preliminary squeezing process, the sheets of paper, still quite moist, are separated from the felt and are again pressed to expel water. The sheets of paper are now sent to lofts (drying-rooms) to be hung up singly and dried. Paper prepared up to this point is highly absorbent and quite unfit for writing purposes. So that the surface may be fit to carry writing ink without spreading, the sheets are immersed in tubs or troughs of hot size\*—a solution of gelatine and glue—then pressed, and again hung up to dry.

In machine-made (Fourdrinier) papers a continuous sheet—an endless band of woven wire gauze—is used, this sheet moving horizontally over rollers. From side to side it is shaken which operation knits the fibres in much the same manner as by the hand-made process. The pulp and water are forced through a screen on to the moving band of wire cloth and the water filters through. Suction boxes placed beneath the wire accelerate the removal of the water. Just before leaving the wire the layer of pulp, still highly charged with water, presses under a couch roll, which expels more moisture and gives the sheet

strength. In one continuous piece it now passes on to an endless moving band of felt, and this felt with the paper passes between press rolls. Thence the paper travels to another band of felt and through a second set of press rolls. By this time the sheet is fairly firm, and to dry it, it passes between several sets of heated cylinders. The width of the sheet of paper is regulated by bands of rubber fastened to the sides of the wire cloth.†

The sizing process is sometimes done on the same machine, a continuous sheet of paper passing through a trough of size and then being pressed and dried. The machine will roll up the paper or cut it into sheets as desired. A deckle edge on machine-made paper is usually produced by means of an endless rubber band, "deckle strap," travelling at the two sides of the endless wire sheet.

It has been explained that the first paper made in a wire mold was "laid," and it will be understood that when the pulp settles down on the wires it follows the contour of the wire base, the pulp being actually thinner over each individual wire than between the wires. When the paper is dry and is held up to the light, the laid effect is easily seen. Such laid marks are in themselves watermarks, although not generally known as such. To make the watermark proper wire is skilfully bent to the desired form and screwed on to the laid or wove base with very fine brass wire. The design is thus higher than the wire base of the mold, and where the pulp forms over the raised surfaces it is thinner, and hence more transparent. This constitutes the watermark as made by the early paper manufacturers.

† Wm. Joynson, the founder of W. Joynson & Son whose mills are at St. Mary Cray, Kent, England, changed the making of paper by hand to machine in 1828. These mills are generally credited to be the first to watermark machine-made paper.—R. W. Siddall in "Paper Technology."

\* Hence the term tub-sized.

In machine-made papers the watermarking does not begin until after the pulp has been formed into sheets on the endless wire gauze. Just after the suction boxes and before the couch roll is reached, and while the layer of pulp is very moist, it passes under the "dandy," a skeleton roll covered with laid or woven wire. On to the surface of this roll the design or lettering is sewed or soldered. As this roll turns on the surface of the pulp, it leaves an impression by thinning the pulp where the raised design comes in contact, thus forming the watermark.

Within the last few years great advances in the art of watermarking have been made in Europe, it being now possible to produce shaded and graduated designs, not merely gradations towards transparency, but also towards opacity. These are technically known as double-shaded watermarks. They are made by embossing the wire cloth of the mold, or the wire covering the dandy roll, either in relief or in depression, graduated up and down in accordance with the form of the design required. The wire is pressed into the desired shape between male and female dies, which may be made by hand or by photo-mechanical process. The parts which are in relief produce the light effects, since less stuff is deposited on them, and the parts in depression produce the dark or opaque effects, since more stuff collects there than on the level of the wire. This work is possible by both machine and hand-made processes. While beautiful effects are made by the former process, yet very dark markings are not feasible. On the Fourdrinier machine the paper comes on to the moving band of wire cloth in one thickness, and when it reaches the dandy roll the pulp is pushed into the depressions of the roll, thereby making the paper thicker in those parts. With a deep depression in the roll there would not be enough pulp to fill it up. Hence the hand-made process offers a wider latitude in this form of watermarking.

## CANADA'S PULP AND PAPER EXPORTS.

The Department of Trade and Commerce has issued a report on the export of pulp and paper from Canada during the year ending March 31st:—

### Ground Wood Pulp.

	Tons.	Value.
United States ..	3,181,507	\$2,577,990
Great Britain ..	1,682,143	888,898
Belgium .....	14,423	14,371
France .....	158,970	62,316
Mexico .....	1,807	2,176
Total .....	5,038,850	\$3,545,751

### Chemical Wood Pulp.

	Tons.	Value.
United States ..	831,331	\$1,597,319
Great Britain....	21,094	42,252
Australia .....	452	814
Belgium .....	9,680	14,520
Cuba .....	460	921
Japan .....	365	914
Mexico .....	1,224	2,106
Total .....	864,606	\$1,658,846

### Wrapping Paper.

	Pounds.	Value.
Newfoundland ..	278,137	\$ 8,731
B. W. Indies.....	7,280	268
Germany .....	250	10
United States ...	4,225	89
Total .....	289,892	\$ 9,098

### Printing Paper.

United States .....	\$1,246,795
Great Britain .....	527,851
Australia .....	445,549
B. Africa .....	124,096
B. E. Indies .....	358
B. W. Indies .....	1,164
Newfoundland .....	10,007
New Zealand .....	179,208
Argentina .....	27,511

Belgium .....	1,880
Brazil .....	7,501
Cent. Am. States .....	4,160
China .....	1,977
Cuba .....	23,010
Ecuador .....	98
Hayti .....	205
Mexico .....	3,479
Panama .....	1,528
Peru .....	37
Philippines .....	2,351
San Domingo .....	158
U. S. of Columbia.....	666
Venezuela .....	2,654

Total ..... \$2,612,243

#### Paper Not Elsewhere Specified.

United States .....	\$ 39,727
Great Britain .....	384,458
Australia .....	7,440
Bermuda .....	1,306
B. Africa .....	15,228
B. Guiana .....	993
B. W. Indies .....	4,488
Newfoundland .....	19,624
New Zealand .....	1,044
Aust. Hungary .....	1,004
Belgium .....	186
China .....	2
Cuba .....	1,420
France .....	81
French Africa .....	15
Germany .....	1,056
Holland .....	500
Italy .....	65
Japan .....	1,337
Mexico .....	2,372
Philippines .....	.....
St. Pierre .....	32
Switzerland .....	364

Total ..... \$ 482,832

#### Recapitulation.

Wood pulp, the produce of Canada, exported to:—	
United States .....	\$4,175,309
Great Britain .....	931,150
All other countries.....	98,138
	<hr/>
	\$5,204,597

Paper, the produce of Canada, exported to:—	
United States .....	1,286,611
Great Britain .....	912,309
All other countries .....	905,253
	<hr/>
	\$3,104,173



#### POSSIBILITIES OF LABRADOR.

Discussing the Labrador pulp prospects, Dr. Wilfred Grenfell, the famous missionary, says that the immediate future of Labrador would depend largely on the possibilities of its timber for pulp wood. It was safe to say that, while there were areas in Labrador which, under present circumstances, could not be successfully worked for pulp, there were others that most certainly could. The policy of the Newfoundland Government in refusing to export the raw material appealed to him as a very wise one, for, with pulp-wood standing at \$12 a cord, and almost unattainable in Wisconsin, he had every confidence that there were areas in Labrador that carried enough available timber to be worked successfully. The expense of milling was beyond his province, but Labrador possessed an almost inexhaustible water-power, which in the future would undoubtedly be one of her chief economic assets.

He sounded a warning to those thinking of investing in pulp speculations in Labrador. According to A. P. Low, while as far north as lat. 54 deg. the forests might be said to be practically continuous except on the highest hill-tops, by lat. 55 deg. half the country was treeless, while those that did exist had greatly decreased in size.



J. R. Booth is putting up a building near the dam above Chaudiere Falls in which pulp-wood will be sawn into required lengths as it is taken out of the water.

## Pulp and Paper Production of United States.

WOOD PULP AND OTHER PAPER STOCK USED—COMPARATIVE  
SUMMARY, 1909, 1904 and 1899.

Item.	Census			Per cent. of Increase 1899-1909
	1909.	1904.	1899.	
Number of establishments .....	787	761	763	3
Total cost .....	\$ 107,607,000	\$70,697,000	\$44,321,000	143
Pulp wood, cost .....	\$33,802,000	\$20,801,000	\$9,838,000	244
Wood pulp, total tons .....	2,834,000	2,019,000	1,173,000	142
Made for our own use, total tons..	1,590,000	1,141,000	529,000	201
Purchased—				
Total tons .....	1,244,000	878,000	644,000	93
Total cost .....	\$43,916,000	\$27,633,000	\$18,369,000	139
Ground—				
Made for own use, tons.....	871,000	696,000	306,000	185
Purchased—				
Tons .....	452,000	318,000	262,000	73
Cost .....	\$9,488,000	\$5,754,000	\$4,361,000	118
Soda fibre—				
Made for own use, tons.....	149,000	66,000	78,000	91
Purchased—				
Tons .....	155,000	121,000	94,000	65
Cost .....	\$6 863,000	\$5,047,000	\$3,431,000	100
Sulphite fibre—				
Made for own use, tons.....	570,000	379,000	145,000	293
Purchased—				
Tons .....	630,000	433,000	273,000	131
Cost .....	\$27,218,000	\$16,567,000	\$10,112,000	169
Other chemical fibre—				
Purchased—				
Tons .....	7,000	6,000	15,000	53 <sup>1</sup>
Cost .....	\$347,000	\$265,000	\$465,000	25 <sup>1</sup>
Rags, including cotton and flax waste and sweepings:				
Tons .....	358,000	295,000	235,000	52
Cost .....	\$10,710,000	\$8,865,000	\$6,505,000	62
Old or waste paper:				
Tons .....	983,000	589,000	356,000	176
Cost .....	\$13,677,000	\$7,430,000	\$4,869,000	181
Manila stock, including jute bagging, rope, waste, threads, etc.:				
Tons .....	117,000	107,000	99,000	18
Cost .....	\$3,560,000	\$2,502,000	\$2,437,000	46
Straw:				
Tons .....	303,000	305,000	367,000	17 <sup>1</sup>
Cost .....	\$1,360,000	\$1,503,000	\$1,396,000	5
Other stock:				
Cost .....	\$482,000	\$1,063,000	\$817,000	41 <sup>1</sup>

<sup>1</sup>Decrease.



The foregoing is a preliminary statement showing the general results of the Thirteenth United States Census of the establishments engaged in 1909 in the manufacture of paper and wood pulp. It presents comparative summaries of the quality and cost of materials used, and of the quantity and value of the various products manufactured in 1909, 1904 and 1899, together with comparative statistics of imports and exports.

The summary shows the number of establishments and the kind, quantity and cost of the principal materials used for the years 1909, 1904 and 1899.

Total value of products reported for 1909 was \$267,869,000, compared with \$127,327,000 in 1899, an increase of 110

The total quantity of wrapping paper manufactured was 535,000 tons in 1899 and 764,000 tons in 1909, a gain of 43 per cent., while the value increased from \$24,543,000 to \$42,296,000, or 72 per cent.

The total quantity of boards manufactured in 1909 amounted to 832,000 tons, valued at \$26,145,000, compared with 366,000 tons in 1899, valued at \$10,353,000. The manufacture of tissues increased from 28,000 tons, valued at \$3,487,000, in 1899, to 78,000 tons, valued at \$8,554,000 in 1909, while the quantity of building, roofing and sheathing papers increased during the decade from 97,000 to 218,000 tons.

#### Imports and Exports.

The following statement shows the im-

#### IMPORTS AND EXPORTS OF PAPER, PAPER STOCK AND WOOD PULP, 1899, 1904 and 1909.

Item.	1909.	1904.	1899.
Imports :			
Paper .....	\$7,182,539	\$3,867,595	\$2,392,114
Paper stock .....	\$3,638,034	\$2,900,713	\$2,614,914
Wood pulp—			
tons .....	307,122	144,796	33,319
Value .....	\$8,629,263	\$3,602,668	\$671,506
Exports :			
Paper .....	\$7,200,553	\$7,089,793	\$5,477,884
Wood pulp—			
tons .....	10,325	15,115	27,966
Value .....	\$448,960	\$593,471	\$606,311

per cent. during the decade. The quantity of news paper manufactured increased during the same period from 569,000 tons to 1,176,000 tons, or 107 per cent. The proportion put up in rolls in 1899 was 80 per cent. of the total, compared with 93 per cent. in 1909. The quantity put up in sheets has materially decreased.

During the ten years the quantity of book paper made increased from 282,000 to 575,000 tons, or 104 per cent., while the value increased from \$19,467,000 to \$42,803,000, or 110 per cent. The quantity of writing paper showed an increase of 88 per cent., with a gain in value of 104 per cent.; while "All other fine paper" increased 26 per cent. in quantity and 12 per cent. in value.

ports and exports of paper, paper stock and wood pulp for the fiscal years ending June 30, 1899, 1904 and 1909.

The value of products represents the products actually turned out by the factories during the census year, and does not necessarily have any relation to the amount of sales for that year.



We extend congratulations, along with thousands of other people throughout the Dominion, to Mr. J. R. Booth, the pulp, paper and lumber king, on the celebration of his eighty-fifth birthday on April 5th, which found him as full of health and business and hard work as usual.

### THE HOLLANDER.

The director of a French printing-paper mill asked my advice as to rebuilding an otherwise modern hollander engine, writes Carl Eichhorn, in *Paper Making*. For a printing-paper machine of 10,000 kg. daily output the mill had two hollander engines with a concrete trough of about 5,200 mm. inside length; the engine-roll was 1,300 mm. broad and only 1,200 mm. in diameter. After carefully examining the engine I concluded that it would be possible to make a considerable improvement in three days. This time was willingly granted to me. Thereupon, I made alterations in one of the two hollander engines in the height of the breasting, in the distance of the breasting from the roll, and in the construction of the hat, and made arrangements at the walls of the trough in front of the cylinder in order to prevent unbeaten pulp passing. I had the rear part of the hat made afresh of wood.

After this the two hollander engines, that rebuilt and that left in its original state, were charged in exactly the same manner with cellulose and mechanical wood-pulp. After the pulp was uniformly mixed and the beaten process started, the velocity of the pulp was exactly measured and the measurements frequently repeated. The velocity of the pulp in the engine which was not rebuilt was 5 m., and in the modified engine 21 m. per minute. In the unchanged engine the pulp was 10 cm. higher in front of the engine-roll than in the rebuilt, although in the latter I had made the breadth of the canal mouth close in front of the roll 100 mm. narrower, so that really a higher level of the pulp should have been expected.

The primary condition for rapid circulation of pulp is that the cells of the engine-roll can fill well with pulp; this is, however, the case only when the air can escape laterally when the pulp enters into the cells. The escape of the air, is, however, rendered difficult by the pulp located between the ends of the engine-roll and the walls of the trough,

to which a high level of pulp in front of the roll much contributes. In the rebuilt hollander engine there was hardly any pulp at the places in question, and no more pulp issued out of the hat where this was traversed by the shaft. When the breasting was in its original form the pulp was lifted and forced upwards as in a pump; also, the engine-roll carried an enormous amount of pulp back to the front. When the breasting was changed the pulp flew freely over the backfall.

On the basis of my former observations I had made the distance between the breasting and the engine-roll somewhat smaller than formerly, and have come to the conclusion that this is advantageous for the motion of the pulp for the following reasons: When the distance is large the pulp which is carried round at a speed of nine metres per second issues out of the cells behind the bedplate and its velocity is negatived; when the pulp, however, flies freely over the backfall, the centrifugal force inherent in it is utilized for moving the pulp. I am, therefore, of the opinion that the distance between the breasting and the engine-roll can be made much narrower than formerly.

It is true that it is then necessary to send the pulp through the edgerunner or the kneader before it is charged in. This is preferable, however, in any case, because the engine can be emptied 3—6 times per day more. For the above reasons I also hold that the bed-plate should be allowed to go much further upwards than in the former Korschilgen hollander engines. When such a broad bedplate is not suitable for the desired beating, the breasting is placed nearer the roll with the exception of a short distance under the horizontal plane located through the shaft of the roll. The pulp is then carried further upwards in the cells, issues at its full speed out of the cells and thus accelerates the circulation of the pulp. In addition, the pulp is exposed to a certain whipping action against the breasting.

The hollander engine rebuilt by me used less power than that not changed, and the machine-tender asserted that the pulp was worked more readily and quicker on the paper-making machine. The above-mentioned changes can be made in every trough whether it is made of concrete or cast-iron. The circulation of the pulp in the original hollander engine was much impaired owing to much pulp flying to the front again over the roll, whilst this was prevented by a doctor in the modified engine.



### TESTING PULP FOR FINENESS.

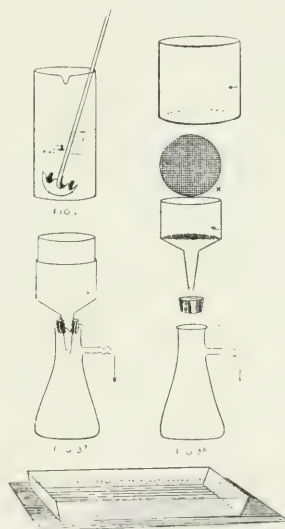
In beginning the operation of testing a pulp, says "Paper," especially a ground wood or mechanical pulp, two questions confront the pulp manufacturer as well as the papermaker: First, what is the shape of the pulp fibres? and secondly, are there splits (small, hard bundles of fibres) among them which may be visible to the eye in the finished paper? An acquaintance with the following simple methods for testing the fineness of the pulp is, therefore, of advantage, both to the manufacturer and to the consumer.

In the first place, the man in charge of the grinder should watch the product of his machines continually, in order to ascertain whether or not the machines are working properly. By doing this he learns how to use his machines to the best advantage, and avoids the loss of turning out a quantity of material inferior in quality. In addition to this preliminary care on the part of the man in charge of the grinder, the paper manufacturer should have at his command apparatus for examining as thoroughly as possible the quality of the pulp which he plans to use in the manufacture of his paper.

The accompanying drawing shows an apparatus for testing the pulp; also for making hand samples according to Büchner. Fig. 3a shows the complete apparatus, arranged for separating the

fibres from the water, thus producing a uniform paper sheet on the wire gauze. Fig. 3b shows more minutely the various parts of the same apparatus. The hand samples made from time to time by means of the above apparatus should be carefully preserved. They should be compared continually with special reference to their fineness color and strength.

The best pulp, especially in the case of mechanical wood pulp, is that in which there is the greatest number of separate fibres and the smallest quantity of fibre bundles and fibre fragments. In order to test the pulp in this respect, a small quantity of it is kneaded with the hand or with a cork press. The soft



material is then beaten with a wooden scraper in a glass vessel (Fig. 1). After this the fibres, dissolved, or rather suspended in water, are put into a photographic tray which has black paper beneath it (Fig. 2). By this arrangement one has a very good view of the length of the fibres. One sees also all the "splits" and mechanical impurities visible to a normal eye, the lower limit being for those about 0.2 mm. in length. This test, in reality only a preliminary one, is of such importance that even the smallest wood grinding mill should possess this practical apparatus for con-

trolling its manufacturing process and the quality of its product. Moreover, this arrangement is not alone valuable in the testing of mechanical wood pulp. It is equally useful in supervising all kinds of fibres.

In judging the quality of pulp, we distinguish between mechanical and chemical impurities. How to test the chemical qualities and ascertain the chemical impurities of pulps will be discussed later on.



#### C. A. LYFORD & CO.

Attention is drawn to the advertisement in another column of the above firm of forest engineers. Their Montreal office devotes special attention to the pulp-wood region of Eastern Canada and the North-eastern States, while the Vancouver office, under the name of Clark & Lyford, is in close touch with the timber resources of British Columbia. They will examine and report on forest properties wherever located, their complete forest survey including topography (with 20-foot contours), amount and distribution of the different kinds and qualities of timber, fixation of boundaries, estimates of future growth, etc. Mr. Lyford is a graduate of the New York State College of Forestry at Cornell University and of the Yale Forest School, a member of Canadian Society of Forest Engineers, Society of American Foresters, and has had eight years' practical experience, chiefly in the spruce and pine forests of Canada and the North-eastern States. Mr. Judson F. Clark was Professor of Forestry at Cornell in 1901-3, Special Expert United States Forest Service, 1903-4, Forester for the Province of Ontario, 1904-6, since which time he has managed British Columbia lumber companies, and otherwise proved his knowledge and usefulness.



—A summer cruise for foresters and others is planned by the Department of Botany and Forestry of the University

of Montana. The course as contemplated would include visits to the best stands of Western timber, viewing operations of the Forest Service on the national forests, nurseries and plantings, timber sales, grazing, reconnaissance, protection against fire, etc. It would also include visits to the largest milling and logging operations in different sections of the North-West. Lectures on different phases of forestry will be given at appropriate points. The regions visited will include the Northern Rocky Mountains, Puget Sound, the Columbia River, Southern Oregon, and the sugar pine country of California. It is expected that the party will leave Missoula, Montana, about July 1st, and that about six weeks will be given to the work. It is designed that the membership of the party should include not only students of professional forestry, but also friends of conservation, practical lumbermen, and others who may wish to study Western forestry and lumbering under advantageous conditions. For further information address Professor J. E. Kirkwood, University of Montana, Missoula.

—The following letter was received by F. Salomon & Co., New York, importers of paper-makers' supplies, from Senator Elihu Root, and explains itself: "I have received your letter in regard to the pulp and paper clause in the proposed Reciprocity agreement. The clause is receiving careful consideration, and I hope that the bill will take such a form as to give effect to what I understand to have been the real intent of the agreement, that pulp and paper are not to come in free except on condition of the removal of all restrictions upon Canadian pulp-wood, including that from the Crown lands."

In the New Brunswick Legislature a motion proposed by Hon. C. W. Robinson, leader of the Opposition, endorsing Reciprocity and favoring an increase in the British preference to 50 per cent. was defeated by 29 to 15, the original resolution denouncing Reciprocity being carried by a majority of 14.



## Pulp and Paper News.

W. P. Ryrie, of the Ryrie Paper Co., Toronto, is on a trip to England. He is expected home about the 20th inst.

\* \* \*

Price Bros. & Co., Limited, have ordered three high-speed news paper making machines from Charles Walmsley & Co., Limited, Bury, Eng.

\* \* \*

The Stronglite Box Co., which makes boxes of paper board tacked on wooden frames, is asking Hull council for tax exemption for fifteen years and fixed assessment of \$5,000.

\* \* \*

The Wm. Cauldwell Paper Co., Montreal, held its annual meeting last month and reported a prosperous year's business. The old officers were all re-elected.

\* \* \*

The Foley-Rieger Pulp and Paper Co., Thorold, will add another grinder and wet machine to their equipment to keep pace with the growing demand for their product.

\* \* \*

A small fire took place in the matches stock room of the E. B. Eddy Co., Hull, but, as the room is made of cement and absolutely fireproof, it was confined to it and did no very extensive damage.

\* \* \*

L. C. Christie, Ladysmith, B.C., is interested in a project to establish a pulp mill on Graham Island, bringing over a number of French Canadian families to settle there.

\* \* \*

Fraser's, Limited, recently incorporated with a capital of \$250,000, propose to build a pulp and paper mill at Edmundston, N.B. They recently purchased timber limits from Murchie Co. for \$342,000.

\* \* \*

The new mill of the Lincoln Paper Co., Merriton, Ont., is engaged largely in producing Kraft, making the fifth mill in Canada turning out this product.

Sulphate pulp will be imported from Sweden we understand.

\* \* \*

The Shelburne, N.S., Electric Co., Limited, are taking steps to start a pulp mill. Power property has already been purchased, dams built, etc., and, if the pulp mill proposition be successful, work on it will be started this fall.

\* \* \*

It is reported that W. J. Findlay & Co., Strathcona, Ont., who make manila, fibre and wrapping papers, have gone out of business owing to the unsatisfactory nature of the trade in recent years and to the diminished water power.

\* \* \*

Geo. H. Millen, joint manager of the E. B. Eddy Co., headed a list of the "Georges" employed in the Hull mill presenting a large contribution for the fund for the memorial to be presented to King George V. at his coronation. Mr. Millen was in Toronto this week.

\* \* \*

We regret to hear of the death of W. C. Campbell, father of F. J. Campbell, general manager of the Canada Paper Co. He was a resident of Toronto for over fifty years, and founded the firm of James Campbell & Son, who issued the first set of school books in Ontario.

\* \* \*

Plans are being made for the proposed improvements and extensions to the Soo pulp mill which was recently purchased from the Lake Superior Corporation by the Lake Superior Paper Co. T. J. Drummond, of Montreal, the president, recently visited the works on a tour of inspection.

\* \* \*

The Wayagamack Pulp and Paper Co., Three Rivers, Que., has started construction work on one of its four contemplated units, each capable of producing fifty tons of paper daily. Contract for three paper machines has been given to an English firm.

Alex. Buntin, of Buntin, Reid & Co., paper dealers, is on a business trip to England.

\* \* \*

Arthur Briggs, superintendent of the Kinleith Paper Co., St. Catharines, who has been away for a needed rest, has returned in improved health.

\* \* \*

Millers' Stores, Limited, Port-of-Spain, Trinidad, who handle wrapping paper, would like to get in touch with Canadian manufacturers.

\* \* \*

The Anglo-Newfoundland Development Company, of Grand Falls, Newfoundland, have placed an order for two large paper machines, which are to be installed soon for the extension of their news print department.

\* \* \*

Edwin Crabtree and Sons, of Crabtree Mills, Que., are putting in two rotary screens, made by Chr. Wandel, of Reutlingen, Germany. The order was placed through W. G. Ashdown, agent for Canada.

\* \* \*

The Anglo-Newfoundland Development Co. has awarded the contract for two additional 164-inch news machines for its mills at Grand Falls, Nfld. The plant is running to full capacity, and great satisfaction is expressed with the quality of the product turned out.

\* \* \*

The Inter-Lake Tissue Mills Co., which, as announced last month, will start a mill at Thorold with two machines and a daily output of ten tons, has bought the old Lincoln Paper Mill water-power, between Thorold and St. Catharines.

\* \* \*

The action of James Davy against Foley-Rieger, pulp manufacturers of Thorold, on the ground that defendants had taken down a wall across the tail-race, interfering with plaintiff's power, was dismissed with costs, as was also defendants' counter-claim, asking an injunction to restrain plaintiff's use of the tail-race.

The new legislation recently passed by the New Brunswick legislation prohibiting the export of pulp-wood cut off Crown lands will take effect October 1st. This is one point more to the good. It not only removes past uncertainty, but brings nearly the whole of the Dominion into line for the conservation of its forest resources.

\* \* \*

Engineers representing a private corporation have filed claims on the Saskatchewan River, forty miles north of Edmonton, where there is a twenty foot drop in the river. It is rumored that these and other sites will be used to develop power and run paper mills, as there is an abundance of wood in the vicinity to insure the success of such a venture.

\* \* \*

Hugh Blethen, of New York, manufacturer of travelling cranes, trolleys, etc., for pulp and paper mills, paid a visit to Ontario and Quebec last month. Mr. Blethen reports his trade good in Canada, and has also installed cranes in the mills of Newfoundland. Among his recent orders is one from the Wayagamack Paper Company, now under construction. Mr. Blethen also shipped an outfit of cranes, etc., to a mill in Japan.

\* \* \*

It is understood that W. B. Snowball, one of the liquidators of the Miramichi Pulp and Paper Co., Chatham, N.B., has not yet succeeded in interesting English capital in that enterprise. In the meantime, some Montreal capitalists, headed by W. Johnson, have been looking over the plant with a view to purchase, if terms can be arranged. An option at \$345,000 is offered,

\* \* \*

M. F. Goddard has started in Waterloo, Que., under the name of the Waterloo Envelope Co., a factory for manufacturing stationery and envelopes. It is a two-storey building with up-to-date machinery, which is being added to as required. E. L. Goddard, who was for ten years with the United States Envelope Co., Worcester, Mass., is manager.

S. Charles Phillips, the senior member of S. C. Phillips and Company, publishers of the "Paper Maker and British Paper Trade Journal," London, arrived in New York last month. He was a guest of honor at the annual banquet of the Swedish Chamber of Commerce, held at the Hotel Astor, and also dined with Hon. A. C. Hastings, president of the American Paper and Pulp Association while in New York. Mr. Phillips paid a fraternal visit to the "Pulp and Paper Magazine." He will remain in Canada for a fortnight, and will then go to the World's Fair at Turin, Italy. He is a member of the executive of the paper and pulp section of the Italian Exhibition.

\* \* \*

The terms proposed by the Ontario Government for the Fort Frances and Lake Abitibi pulp concession leases seem to have been too severe, or else the prospects of "Reciprocity" proved an adverse factor, the unsettling nature of which no buyer cared to contend against at present. The tenders were received some days ago, and Hon. Frank Cochrane, Minister of Lands, Forests and Mines, announces that none of them were regarded as satisfactory, and that the concessions would remain in the Crown for the present. The conditions in connection with these concessions were that the licensees should erect pulp and paper mills within the limits. At the Fort Frances concession, which covers 800 square miles, the mill was to cost \$350,000. At the Abitibi concession, which covers one million acres, the mill was to cost \$500,000.

\* \* \*

—The proposed reciprocity deal is responsible for the halting of at least three projected enlargements of paper mills; the Toronto Paper Mfg. Co., the Don Valley Paper Mills, and the Montrose Paper Mills were preparing to install new machines which would nearly double their output; but when the reciprocity treaty was brought on the projects were declared off. A New York State company manufacturing a new wall plaster

board made of pulp, was on the point of starting a Canadian branch in Ontario, but have abandoned the plan, as under the conditions of the reciprocity plan it would be cheaper to ship direct from the United States.

\* \* \*

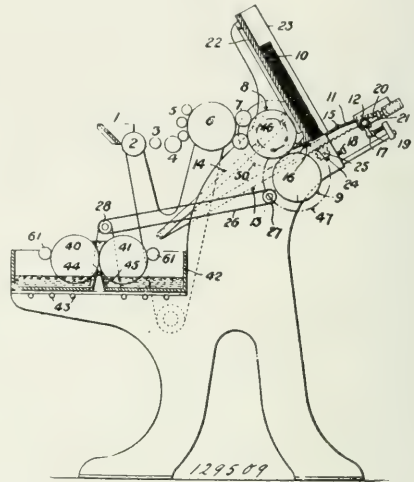
—"Habitant" writes as follows in the last issue of "Paper," New York: It is a matter of general comment that the paper and pulp interests of Canada have not had a spokesman in parliament during the three months' discussion of reciprocity, and this in spite of the fact that two well-known paper and pulp manufacturers are members of the House of Commons. They are William Price, Conservative, of Price Brothers & Company, Limited, and E. W. Tobin, Liberal, of the Brompton Pulp & Paper Company. These two men are deeply interested in the business of making pulp and paper and are large timber land owners in the Province of Quebec. But not one word has been uttered by either of them during the whole debate on the effect of the reciprocity agreement upon their business. It is known that Mr. Price politically is opposed to reciprocity, although it is well-known that personally he considers the agreement a good thing for his particular business. Mr. Tobin is in favor of the agreement. Mr. Price's partner in London, Mr. I. Hamilton Benn, M.P., is outspoken in saying that the agreement will greatly enhance the value of standing timber in Quebec, and will be a good thing for the Quebec lumberman and paper manufacturer. Mr. W. H. Rowley, president of the E. B. Eddy Company, of Hull, P.Q., is strongly opposed to reciprocity. Senator Edwards, president of the Canadian Forestry Association, is in favor of it, but he has not said so in the Canadian Senate. Every other trade and business in this country has had its spokesman in parliament for or against the reciprocity agreement. The silence of those who would naturally be expected to speak for the paper industry is unaccountable.

## Recent Canadian Patents Affecting the Pulp and Paper Trades.

No. 129,481.—Apparatus for Removing Bark from Wood.—Fred. W. Ayer, assignee of Fred. R. Ayer, both of Bangor, and Walter S. Haley, Brewer, Maine.

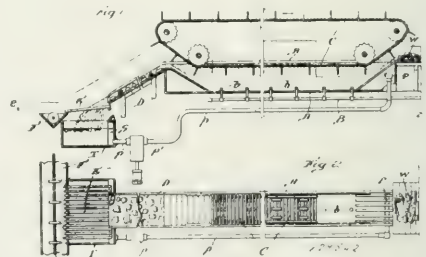
This is an apparatus for removing bark from wood, comprising a tank adapted to receive and hold water and the material to be treated, means in said tank below the water level therein adapted to hold said material submerged in the water, means to carry said material while submerged from the intake to the delivery end of said tank, an inclined chute at the delivery end of said tank provided with projections adapted

in contact with one another adapted to dip into the waxing material and to be revolved so as to carry the waxing ma-



material up to their point of contact to form a pool, a triangular partition in said tank located below the point of contact of said cylinders, a slot in the apex of said partition, and means for feeding the sheets of paper between said cylinders.

No. 129,542.—Method of Separating Bark from Wood.—Fred. W. Ayer, Bangor, Maine, 29th November, 1910; six years.



The method of denuding wood of its bark to make it suitable for pulp consists in steeping the bark-covered wood

to tumble the wood as it passes down the chute, said chute being trough-like in form to retain thereon the overflow water from the tank, which assists in carrying the material down the chute, a separator platform at the bottom of said chute adapted to retain the wood and permit the water to flow away, a collecting receptacle below said separator platform to receive the water therefrom, and a pump and pipe connection to take and deliver water from the collecting receptacle to the intake end of the tank.

No. 129,509.—Lid for Paper Vessels, etc.—The Mono Service Vessels, Limited, London, assignee of Elmer Zebble Taylor, 40, 41, 42 Percival Street, Goswell Road, London, England.

This relates to a mechanism for treating sheets of paper with a waxing material, and comprises a tank for holding the waxing material, a pair of cylinders



in an abundance of water at a temperature between 180° Fahrenheit and boiling point, thereby liquefying all the cementitious matter between the bark and the wood and impregnating the wood and bark with sufficient water to hold said cementitious matter in such liquefied condition as renders the bark capable of removal from the wood in its entirety by the aid of gentle mechanical treatment, such as the attrition of one piece of wood upon another, and subsequently while the cementitious matter is still liquefied, subjecting the pieces of wood to this mechanical treatment.

No. 128,608.—Machine for making Paper, Boards, Etc.

Halvor, Gaara, Bö, Telemarken, Norway.

In the vat of a paper machine there is a cylinder mounted to rotate therein, a cloth for removing the pulp layer from the surface of said cylinder and conveying it to the outside of said vat, means



Fig. 3.

for causing said cloth to pass into said vat below the surface of the water therein and to lie tightly against the surface of said cylinder, thereby pressing the pulp layer against it before it is lifted out of the water, and dikes arranged on both sides of the top of said cylinder enabling the water level to be raised above the top of said cylinder.



—The Union Bag and Paper Co.'s plant at Hudson's Falls, N.Y., was damaged by fire to the extent of \$200,000

## PULP AND PAPER MARKETS.

Toronto, May 8th, 1911.

There is great activity in the mills making news print, and many have had to refuse even orders for home consumption. Orders for future delivery have to be turned down in view of a probably advancing market. Prices are quoted at \$2.30 in rolls. Some slight improvement has taken place in the position of wrappings, though prices are still unsatisfactory, Manila being about 2¼c. and fibres at 2¼c. Though prices of Kraft can scarcely be said to be as high as they should be, that paper seems to be increasing in popularity at 4 to 4¼c. in carload lots. Supplies are increasing, another mill in Ontario having started to produce it. The book mills are fairly busy, having started up again after a short cessation, making renovations while the water was out of the canals.

The water situation has greatly improved during the month, owing to timely rains and the melting of the snows. At Ottawa the water is almost normal again. This gave pulp mills an opportunity to catch up more or less with their orders, which was assisted also somewhat by a slight lull in the insistent demand from the States in the middle of last month, owing to better water-powers there. The demand for domestic consumption has been very brisk all along, and prices are very firm, extremely high prices having been offered quite recently for immediate delivery. The general price lies around \$24, delivered at mill. Sulphite is also in good demand at \$42.

Swedish mechanical pulp can now be laid down in Canada or the United States at \$25 a ton, dry. At this price Swedish ground wood pulp would be on a level with the Canadian product in the United States market in the Eastern and Middle States. It could be shipped, under present circumstances, as far west as Wisconsin, where the freight would bring it to a par with the domestic product at \$20.50. Nothing now

goes to Pennsylvania at less than \$25, but whether Swedish pulp can find a market under normal conditions is very uncertain. There has been over-building in Scandinavia and excessive production for some time past, and the efforts of those mills to get into the United States is indicative of financial pressure on those holders of stock who are forced to realize. This accounts for the order of 50,000 tons of ground wood pulp placed by one of the large United States companies in Sweden as mentioned elsewhere; and it is yet to be disclosed whether this order is being filled at a loss or profit. If at a profit, the chance of further competition from Sweden in this line in the United States market will depend on the absorbing capacity of the European market, which is the first care of the Scandinavian pulp manufacturers.

\* \* \*

#### PAPER STOCK MARKET.

Montreal, May 8, 1911.

The market for rags and stock has been dull, with prices on the down grade, good cuttings, however, are an exception, being rather scarce.

Following are the current quotations:  
Shirt Cuttings— Per 100 lbs.

White .....	\$5 00 to \$5 10
Unbleached Cottons ..	4 25 to 4 50

Shoe Rag Cuttings—

Bleached .....	3 75 to 4 25
Mixed white .....	2 75 to 3 25
Light print .....	2 75 to 3 00

Overall Cuttings—

Blue .....	3 00 to 3 25
Brown .....	2 00 to 2 50

Paper Shavings—

Hard white .....	2 00 to 2 25
Soft No. 1 white.....	1 50 to 1 75
Soft No. 2 white.....	1 25 to 1 30
Mixed shavings .....	0 45 to 0 55
Ledger stock .....	1 00 to 1 25
Printed book .....	0 90 to 1 00
Common waste .....	0 25 to 0 30

Roofing Stock—

No. 1 satinettes .....	0 75 to 0 80
No. 2 satinettes .....	0 45 to 0 50

Sundries—

Old bagging .....	0 55 to 0 60
Manila rope .....	2 00 to 2 15

\* \* \*

#### BRITISH MARKETS.

London, April 25, 1911.

There is no alteration in the dull condition of the mechanical wood pulp market, reports World's Paper Trade Review, over-production making it impossible for manufacturers to carry on a profitable business. Some mills have acted on their own initiative in reducing output, there evidently being some doubt as to whether any concerted action will be agreed upon by members of the kindred wood pulp associations. The chemical pulp market continues weak, and prices are difficult to move in an upward direction owing to the influence of new mills. It is reported that more firmness is being displayed by makers in regard to contracts for 1912 and the following year.

Business in chemicals during the past week has been on very quiet lines owing to the Easter holidays. Chemicals are reported steady, with a fair export enquiry. Prices are without quotable change.

The demand for both Home and Foreign rags is reported to be fairly active, and prices of some grades show an upward movement.

\* \* \*

#### SCANDINAVIAN MARKETS.

The Scandinavian pulp mills have been very hard put to it in order to obtain enough wood for their mills. The good supply of water has led to over-production, in spite of the low prices of pulp, and has now led to proposals for the production to be curtailed if prices are to be at something like a profitable  
(Continued on Page 66.)

PRIME . . .  
CANADIAN CHICOUTIMI,  
P.Q., CANADA.  
SPRUCE PULP

SUPPLIED BY THE

**CHICOUTIMI**  
**Pulp Co.**

Production: About 100,000 tons.

---

SOLE AGENTS:

**BECKER & CO.**

LIMITED

**64 CANNON ST., - LONDON.**

(Continued from Page 216.)

figure. Added to the strong competition in the English market Canada has had to be reckoned with, at the same time the market is well stocked, and prices therefore low. Cost of production has increased and wages are advancing steadily. This does not apply to the raw material alone. The most northerly mills can no doubt get their wood at a fair price, but mills in the centre of Sweden, and south of Norway, have had to pay a higher price. This applies more to the Norwegian mills than Swedish.



#### MARKET NOTES.

Latest reports from a Canadian in New York show that trade conditions in general are unsettled; and the atmosphere is cloudy over the pulp and paper industry, among the others. Seven new machines that had recently been installed in the book paper branch are held in idleness because of over-production. In tissue papers the present production is at least twenty-five per cent. below the normal capacity, while board mills are shutting down at times because there are too many machines for the present trade requirements. The large imports both of mechanical and chemical pulp since the tariff was changed naturally aggravate the situation of the domestic mills. It is only the makers of high-class papers, such as writings and books, who have plenty of orders.



#### OLD PAPER MILL AT ST. ANDREW'S, QUE.

The following account of the old paper mill at St. Andrew's, Que., appeared in C. Thomas' "History of Argenteuil." The particulars were furnished to Mr. Thomas by Colin Dewar, a relative of the merchant referred to in the sketch.

"The paper mill was started by a company of Americans, who obtained a 30-years' lease from the Seigneur for the necessary water power; but as James

Brown was the owner of the land where they intended to build the mill, it is quite probable he was a partner from the start, as it was always spoken of as 'Brown's Paper Mill.' The canal was dug to provide water power, and a dam built across the river from the shore on the east side to a point near the foot of the island, and as a large quantity of timber and lumber would be required in the erection of the paper mill, they first of all built a saw mill at the head of the canal, and extending along the river bank, thus giving plenty of room for the piling of the lumber and storing saw logs; and as business increased, the space between the canal and the main road, now occupied by the railway depot, was utilized. The paper mill was built on the site where Alex. Dewar's store now stands, and had sufficient water-power to drive the machinery required for doing a large business, and employment was given to many girls and boys, as well as men. One of the foremen for some time was Mr. G. A. Hooker, (father of the late Mr. G. A. Hooker), and who was ably assisted by the late William Zearns.

"These industries continued for several years, and were of great benefit to the village, in giving employment to many hands, besides, there was no other saw mill nearer than Lachute; and it was regarded as a public loss, when the business of both mills came suddenly to a stop in the spring of 1834, by the dam giving way, owing to the high water and ice. During the summer, preparations were made to rebuild it; but as the Seigneur protested against it, and threatened all sorts of litigation if persisted in, it was deemed advisable to suspend operations. After two or three years' cross-firing between them, the trouble ended by the Seigniors making an offer to Mr. Brown for the purchase of all his property (which was accepted), extending from Lot 29 to Lachute Road, and from the Beech Ridge lots to Davis' line, and including both mills and dwellings. Some of the machinery was afterwards used, when the River Rouge saw mill was erected."



# The Pulp AND Paper Magazine of Canada

Vol. 9—No. 6.

TORONTO, JUNE, 1911

(Canada \$1 a Year  
Single Copy 10c.)

## Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

**Subscriptions:** Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage, \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required, four days earlier. Cuts should be sent by mail, not by express.

**BIGGAR-WILSON, Ltd.**

**PUBLISHERS.**

**Offices, Confederation Life Building,  
Toronto, Canada.**

Western Representative: John MacLean, 417 Grain Exchange, Winnipeg. Telephone, Main 4636.

### PULP AND PAPER CLAUSES IN RECIPROCITY BILL.

It is not very gratifying to Canadians to realize that the legislation of their own country has to depend upon wire-pulling at Washington. Yet that this is the case is once more made manifest by the doubts expressed as to the ultimate passage of the reciprocity measure through the United States Senate as a result of the important amendment recently suggested by Senator Root.

The original clause in the proposed reciprocity agreement read as follows:—

“Provided that such paper and board, valued at four cents per pound or less, and wood pulp, being the products of Canada when imported therefrom directly

into the United States, shall be admitted free of duty, on the condition precedent that no export duty, export license fee, or other export charge of any kind whatsoever (whether in the form of additional charge or license fee or otherwise) or any prohibition or restriction in any way of the exportation (whether by law, order, regulation, contractual relation, or otherwise, directly or indirectly) shall have been imposed upon such paper, board, or wood pulp, or the wood used in the manufacture of such paper, board, or wood pulp, or the wood pulp used in the manufacture of such paper or board.”

The House of Representatives later admitted a clause to give this immediate effect.

“Provided also that such wood pulp, paper, or board, being the products of the United States, shall only be admitted free of duty into Canada from the United States when such wood pulp, paper, or board, being the products of Canada, are admitted from all parts of Canada free of duty into the United States.”

Senator Root's amendment proposes to add to the first of these two clauses the following words:—

“And when the President of the United States shall have satisfactory evidence and shall make proclamation that such wood pulp, paper, and board, being the product of the United States, are admitted into Canada free of duty.”

The agreement, it will be seen, originally provided that Canada should be allowed to send wood pulp and paper into the United States duty free, provided she placed no export duty on such wood pulp. This would seem to allow all paper and wood pulp not produced on Crown lands in Ontario and Quebec to freely enter the States. Senator Root's amendment makes the free admission of paper and pulp a reciprocal matter to be agreed to at some future time, instead of going into effect in part at once.

The suggested amendment is said to have been well received by the Senate Committee, though its possible effect on the agreement as a whole is a question which is being much debated. The fact that Senator Root is one of President Taft's chief supporters would seem to indicate that no enmity to the agreement is intended or implied. On the other hand John Norris, the chief mover in the American Newspaper Publishers' Association, expresses the opinion that the amendment will destroy the treaty, or at any rate postpone it indefinitely, the pulp and paper clause being an integral part of the arrangement. He did not conceal his idea that the effect of the original clause would be to create competition between Dominion and private lands on the one hand and provincial Crown lands on the other hand for sale of pulp-wood to the United States market, the result of which would be the removal of provincial restrictions in order to escape the \$5.75 duty now levied on paper from restricted lands. Asked whether the paper required for the United States market should be made in Canada, he replied "Not at all. The pulp will be made there and converted into paper here." A very pleasant prospect for Canada to contemplate!

#### TARIFF BOARD'S REPORT ON PULP AND PAPER.

The inaugural report of the United States Tariff Board, newly created, deals with the relative costs of making pulp and news-print paper in Canada and the United States, and apart from its bearing on the reciprocity question it is a document of practical interest to all in the pulp and paper trades. The board is to be complimented on the care and thoroughness with which they have set about their work. We are giving in this and succeeding issues a number of extracts from the report.

While assuming the correctness of the reports furnished from the thirteen Canadian mills, whose returns form the basis of the report on the Canadian section, a question may naturally be raised as to whether these thirteen returns would represent the average of output and cost of production of all the mills in Canada. That would depend on the location and equipment of the thirteen, and the cost of transportation of their supplies as well as the cost of freight on their products, with other local conditions. The reports from the United States mills are more likely to represent average costs and average conditions than in Canada.

Making all allowance for such lack of fullness it is pretty evident that the report bears out all that has ever been claimed by this journal as to the advantages which nature has given Canada in the manufacture of mechanical pulp and news-print. The report shows that the average cost of the production of a ton of ground wood-pulp in Canada is \$8.49, and in the States \$13.27; the cost of producing a ton of sulphite fibre \$26.47 in Canada, and \$31.09 in the States, of which \$5.45 is absorbed by the difference

in the cost of wood as a raw material. The average cost of producing a ton of news-print in Canada is stated at \$27.53, and in the United States \$32.88. The difference is \$5.35, of which \$4.71 is accounted for by the difference in the cost of wood as the raw material. We thus realize what a vital element of advantage cheap wood and cheap water-power give to Canada in this field, for if it were not for this primary advantage the difference in favor of Canada in news-print would only be 64 cents a ton, of which only 8 cents represents the Canadian advantage in the matter of labor.

When we leave pulp and news-print and advance to the higher grades of paper the Canadian advantage disappears partially or wholly according to the quality or special kind of paper under consideration. It is this disparity of condition which makes the reciprocity agreement so objectionable, either regarded as a problem of development of the industries of Canada, or as a matter of equity in the protection afforded to each country. The reciprocity agreement is an act of spoliation to the pulp and news-print industry of the United States, and it is also an act calculated to strangle the future development of the manufacture of the higher grades of paper in Canada. It barter away the protection of the United States news-print paper mills for the sake of giving a special trade advantage to the producer of daily newspapers. It is founded upon injustice, and like all such unrighteous acts, will debase those who benefit by it and in due course bring punishment to its authors.

No one could bring such an accusation if the daily papers of the United States took the ground of claiming free trade for all, but not one in a hundred goes

beyond pleading for free trade for their own raw material while advocating some kind of a tariff, high or low, for every other interest in the country.



#### NEW COPYRIGHT BILL.

It is not quite clear yet as to exactly what effect the new copyright bill recently introduced by Hon. Sydney Fisher in Parliament will exercise upon the Canadian paper and printing trades, but so far as first appearances go, it has evidently been the intention to give Canadian authors and Canadian publishers better protection than they have enjoyed. Whether this intention will be fully realized when the details of the new measure come to be examined and worked out, remains to be seen. Even in Ottawa just at present there does not appear to be a very clear idea as to the exact probable effect of all the details of the bill.

Under the regulations of the Copyright Union, and under the old British copyright law non-resident foreigners have been able to obtain copyright in Canada. In future they will not do so. The alteration is directed chiefly against the United States, which is not a member of the Copyright Union, and which does not give reciprocal privileges. In other words, it is necessary to set up, print and publish in the United States in order to get copyright in that country. Thus in the past American authors have secured copyright in Canada by simply selling (or "publishing" in the meaning of the act) their works in Great Britain, while Canadian authors could secure copyright in the United States only by having their

works set up and printed there. The object of the legislation, it is explained, is to do a service to the creator of literary, artistic, dramatic and musical works, and his heirs, by adequately protecting such productions. The protection of the Copyright Act will extend during and fifty years after the lifetime of the author.

We would gather that the general effect of this Act will be to place Canadian copyright on practically the same footing as that of Great Britain and the rest of the Empire.

The change in the law may mean that Canada will have to withdraw from the International Copyright Union. The government will, however, seek to join the union, while reserving the right specified. It is hoped that the union will grant Canada's application on account of the increasing value of the Canadian market. The view now embodied in the new Canadian law was practically accepted by the Imperial Copyright Conference, but whether Britain will act upon that principle is not certain, though Rt. Hon. S. Buxton, who has been piloting certain changes in the law through the Imperial Parliament, believes it will.



#### HISTORY OF RECIPROCITY.

(Continued.)

When the applause had subsided a gentleman proposed "Three cheers for the boy" (which were given with great heartiness.) I have heard it said since I came to the convention that if the reciprocity treaty is annulled the British provinces will be so cramped that they will be compelled to seek annexation to

the United States. I know the feeling in the Lower Provinces, and I believe I am well enough acquainted with the Canadians to speak for them also when I make the assertion that no considerations of finance, no question of balance for or against them on the interchange of commodities can have any influence upon the loyalty of the inhabitants of the British provinces, or tend in the slightest degree to alienate the affections of the people from their country, their institutions, their government and their Queen. There is not a man who dare, on the abrogation of the treaty, if such be its fate, to take the hustings and appeal to any constituency on annexation principles throughout the entire Dominion. The man who avowed such a sentiment would be scouted from society by his best friends. What other treatment would a man deserve who had turned traitor to his government and violated for pecuniary advantages all obligations to the country that gave him birth? The very boy to whom I have alluded as having fought manfully for the stars and stripes would rather blow his own father's brains out than haul down the honored flag under which he was born. If any member of the convention harbors the idea that in refusing reciprocity to British America they would undermine the loyal feelings of the people of those colonies, he is laboring under a delusion.

. . . I sincerely hope that all thought of forcing annexation upon the people of Canada will be abandoned."

Mr. Howe's speech was throughout received in good spirit, and it is worth noting that at this convention a resolution was unanimously passed in favor of a reciprocity treaty between the two countries, and of extending its scope so



as to include British Columbia, the Selkirk Settlement and Vancouver Island.

### Commercial Independence.

We thus see how the Canadian provinces, first by the declaration of free trade in Great Britain, and second, by being cast off from commercial dependence on the United States, were forced, somewhat against their will, to stand upon their own feet and take their destined way among the nations. We see also what an important part the tariffs had in separating the Canadian provinces, first from the Mother Country and the United States, and then driving them into their present federal union.

Having indicated some of the chief causes that led to the framing, and afterwards to the rescission, of the old reciprocity treaty, let us now enquire into reciprocity as a policy of commercial development.

### Reflections.

A reciprocity treaty is an illogical step to a logical conclusion. That conclusion is free trade between the parties to the agreement, but, so long as any tariff at all is maintained between them, the treaty must in course of time work injustice to one or the other, and come to an end. This is so because a treaty made for a term of years assumes a fixity of conditions in a world of change. As the lives of individuals, so the lives of nations are undergoing perpetual changes, and the economic and political conditions which exist in one decade will never be repeated in the next or any succeeding period. The chip thrown on the bosom of the river now will be miles down stream an hour hence, and will

never return as long as the river flows. The economic relations between any two countries which would give perfect equality at the time a treaty is negotiated will, in accordance with this law, render any fixed treaty an instrument of unstable equilibrium. The recognition of this law of perpetual flux is what is bringing protectionist nations to see the need of permanent tariff commissions, by which the tariff may be adjusted to the constantly changing conditions of international trade. We have already seen how this law of change operated in the history of the reciprocity contract under discussion. No sooner was it signed than new necessities arose by which Canada was soon to be compelled either to uproot its whole economic system or to make modifications in its tariff which materially changed the terms upon which the manufacturers of the United States were doing business with this country; while on the other side of the line a political convulsion forced on economic alterations of a still more profound nature. These changes compelled the United States to terminate a compact, even though many of their statesmen foresaw that its cancellation would start the provinces on a new path that would close the door forever to that organic union to which the treaty seemed likely to lead. The war put an end to the treaty more quickly, but the tariffs would have ended it sooner or later, war or no war. The only alternative that could have made the treaty permanent was to include all products in the zone of free interchanges, and this would have involved a common tariff against the rest of the world. Such a tariff would naturally be framed and readjusted at the will of the dominant partner. In short,

while any tariff system is maintained between two countries, reciprocity in a wide sense is doomed to abortion from the day of its conception. When reciprocity is complete it is no longer reciprocity, but free trade between the parties to the agreement. Tariffs and complete reciprocity cannot co-exist permanently between two nations. Partial reciprocity may exist with tariffs, but both would have to be readjusted with changing conditions, and every readjustment involves discriminations against other nations not parties to the agreement.

A reciprocity treaty is between nations just what a contract is between two individuals who propose to fix terms and conditions with each other on articles, the prices and supply of which are not under their own control. If Farmer A. says to Merchant B.: "Let me sell you my crop of wheat for ten years to come at 90 cents a bushel," and B. accepts the proposition and signs an agreement, it is certain that, if next year and for the following nine years the market price of wheat averages only 75 cents, B. will be the loser; while, if wheat for the same term of years went up to an average of \$1 a bushel, A. would be dissatisfied with his own proposition. These two men, like two nations, attempted to fix relations between them without reckoning changes outside of their own relationship which they could not govern, and one or the other must be disappointed.

If tariffs were entirely eliminated between two countries and a common tariff adopted against the rest of the world, it would not follow that equality of advantage under that common tariff would exist in trade with the world unless legislative control were also equally di-

vided between the two, and unless the natural and industrial products were the same. This would not be the case in two countries like the United States and Canada, either as to legislation or industrial conditions, because foreign trade has also to be taken into the account, and the special commodities of Canada's foreign trade are different from those of the United States.

(To be Continued.)



#### EDITORIAL NOTES.

—The Dominion Government's new forestry policy, as announced by Hon. Frank Oliver, Minister of the Interior, is of considerable national importance, and particularly from a western point of view. Under the new Act, by which the eastern slope of the Rocky Mountains will be formed into a reserve, the total reserve area held by the Dominion Government will be increased to 16,760,640 acres. A general extension of the scope of the forestry branch of the government is to be made, and scientific forestry carefully studied in all branches. Moreover, while the future interests of the country are to be carefully guarded the actual needs of the settler will not be neglected. The work of the Conservation Commission should prove useful in this connection.



—Even Norway's forest resources seem to be becoming scarcer. Extensive purchases of wood on Norwegian account are reported in Finland, and now we hear that a syndicate in that country has recently acquired a large area of forest lands in Canada.

# Pulp and News Print in the United States and Canada.

## Report of the U.S. Tariff Board on Costs of Production.

It is interesting to note that the first special report of the newly created Tariff Board of the United States deals with the pulp and paper industries. This report has just been issued.

The report is based on data secured from 53 ground-wood mills, 25 sulphite mills, and 38 news-print mills, making a total of 116 mills and representing 940,478 tons of news-print paper or 80 per cent. of the news-print paper production of the United States. The figures for Canada were taken from 13 ground-wood mills, 5 sulphite mills, and 7 news-print paper plants. Reports were secured covering 78.2 per cent. of the news-print paper, 60.2 per cent. of the ground-wood, and 55.7 per cent. of the sulphite pulp capacity in Canada. This report does not deal with bleached sulphite pulp, sulphite made by the Mitscherlich process, sulphate, nor soda pulps.

"All of these figures," says the report, including those from Canada, "have been secured directly by our representatives from the books of the different companies. We prepared exact schedules including all essential items of equipment, cost, and wages; and for each of the companies included in the tables we have the original schedules covering all items in detail."

The report states that the news-print paper producing capacity of the United States under ordinary conditions exceeds one and one-third million tons per annum, which is more than one-fourth of all kinds of paper produced.

There are 824 plants making paper of some kind, and the total paper productive capacity is 5,196,398 tons. Thirty States, counting the District of Columbia as a State, produce paper in some of its forms.

Productive capacity, in tons, of mills in the United States making each specified kind of paper:—

United States.	
News-print and hanging.....	1,335,321
Writing .....	210,617
Book .....	780,103
Tissue .....	102,539
Wrapping .....	1,020,914
Board .....	1,190,214
Specialties .....	181,607
Building and sheathing .....	368,933
Total .....	5,196,398

The above table compiled from the records of the American Paper and Pulp Association, which is the most reliable available source, represents productive capacity, and not actual output. In news-print paper are included news print in rolls and in sheets, and also hanging paper made in news-print mills. Hanging paper, when made in news-print mills, is made at practically identical cost of production, the increased output making up for the additional cost in sizing.

The census reports for 1909 show 1,091,000 tons of roll print and 85,000 tons of sheet as the actual production for that year, a total of 1,176,000 tons. The Census Bureau gives 92,000 tons as the output of hanging paper, which, taken with the 1,176,000 tons of news print, gives 1,268,000 as the actual output in 1909, whereas the table gives 1,335,321 tons as the productive capacity of these plants in 1910, a difference of 67,321 tons between rated capacity for production in 1910 and actual production in 1909; that is, the production was slightly less than 95 per cent. of present capacity.

The inclusion of hanging paper with news print is made necessary by the fact that some plants make both on the same machines and make no distinction between them either in their output or costs. The fact that the same plants are and can be used for both shows that so far as productive capacity is concerned segregation is not important.

Plants making hanging could change to news print, or vice versa, on demand.

The ground-wood and chemical pulp productive capacity in the United States is indicated by a table likewise compiled from the records of the American Paper and Pulp Association, and shows 192 ground-wood pulp mills, having 1,485 grinders, producing 2,008,680 tons of air-dry ground-wood pulp; 90 sulphite plants, producing 1,204,894 tons of air-dry sulphite fibre (bleached and unbleached); and 31 soda pulp plants, producing 417,387 air-dry tons of that commodity.

There are 555 digesters installed in the United States. The distribution of these between sulphite and soda pulp is not here attempted. Twenty-one States produce pulp of some kind and to some extent.

In explaining the method of arriving at costs of production the report says:—

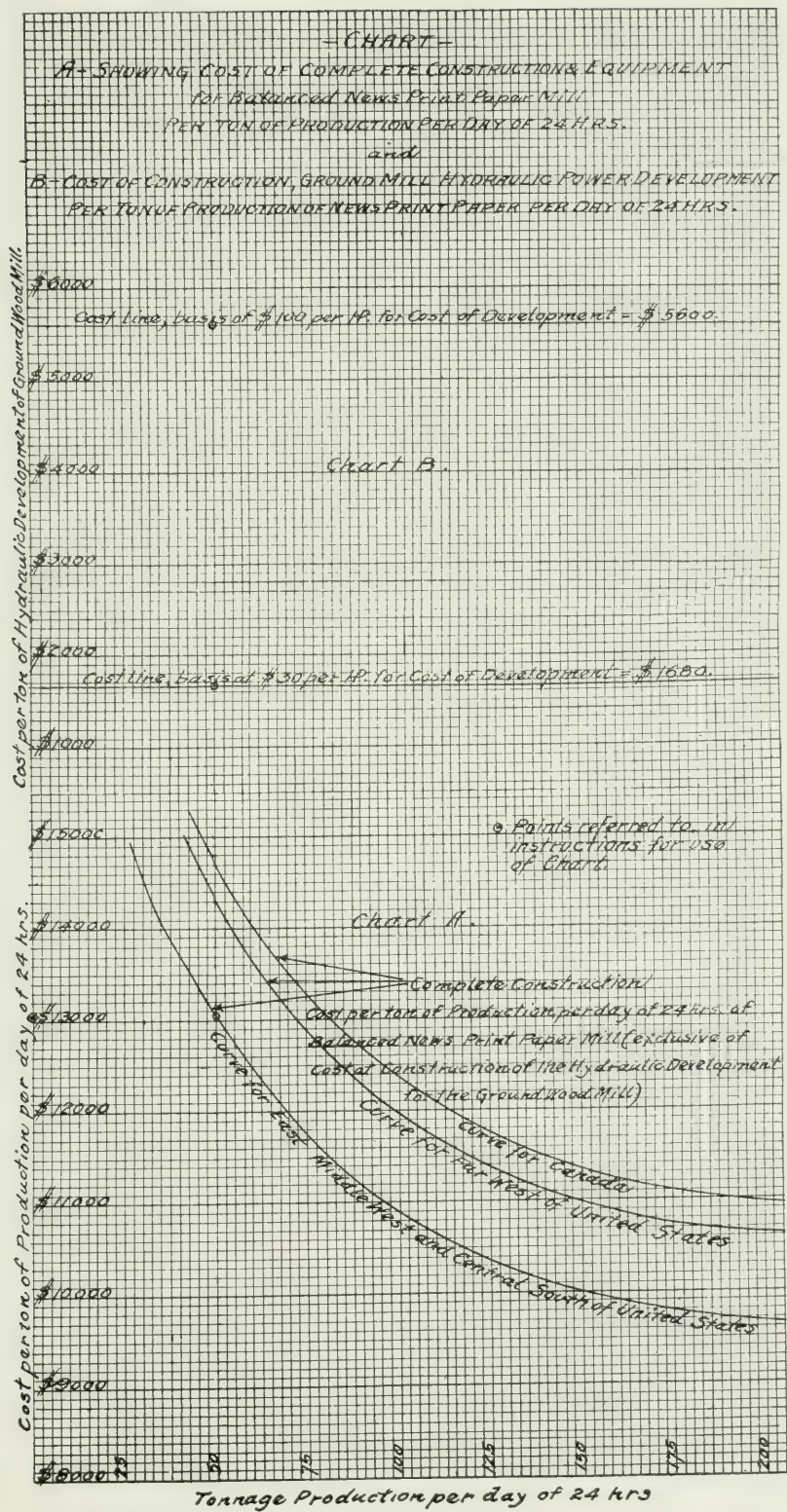
The figures do not include interest either on the capital invested or on borrowed capital. There is no charge for water power except in the case of a few mills which rent their power from other companies. In almost all cases power development is reckoned as a part of the plant and not charged in separately. Other facts must also be considered: Wood is raw material for pulp and both kinds of pulp are raw material for paper. If pulp mills bought all their wood in the open market and if paper mills bought all their pulp in the open market these charges would be very simple. Complexity arises from the different methods of accounting on the part of mills that produce their own raw material. One pulp mill may charge in its wood cut from its own lands at the actual cost delivered to the mill, which because of favorable conditions may be very low. In the case of another company operating under similar circumstances, a pulp mill may be charged with the wood at the current market price and the difference entered as a profit on the lumbering operations. In the estimate of the actual cost of wood, one

company may charge only a nominal stumpage, while another may charge stumpage at the current rates, or even higher. In the same way, a paper mill operated in connection with a pulp mill may charge in pulp at cost, showing no profit on the pulp mill; or it may charge it in at market value, entering the difference to the profit of the pulp mill. Obviously, the cost of paper per ton and the margin of profit per ton, as shown by the books, will depend upon the methods adopted. Some companies prefer to charge in materials of their own at a very low figure, thereby showing a high margin of profit per ton on the finished product. Another company may make its charges in such a way as to show a large margin of profit per cord of wood or ton of pulp, and a very low margin of profit, or even an apparent loss on a ton of paper. The apparent cost of paper in the two cases might be widely different, although if the figures were analyzed and reduced to the same basis they might show substantially the same result.

In the tables presented an effort has been made to reduce all items to a uniform basis for all plants before combining them into totals. While on the one hand the figures in the tables give costs as shown by the manufacturers' books, all costs have been gone over, and the stumpage, profits on woodland operations in excess of stumpage, profits on transfers of pulps from mill to mill, have been considered and a statement made of their amounts, so far as the actual returns show. That is to say, while the costs are given as the board found them to be on the books, information is given by which the uncertain elements of depreciation and interest may be considered and the elements of stumpage and profits on transfers are shown for the proportion of cost figures into which they enter.

In the next place it should be carefully remembered that the figures as here submitted do not include any statements as to capital investment. The relation





of mill costs to selling price at the mill may be entirely misinterpreted by one not familiar with the investment of capital necessary for given output. Obviously the margin of profit per ton indicates of itself nothing as to the earnings on capital.

Finally, two other points arise in connection with the manufacture of pulp and paper which involve very difficult questions. These are due to the fact that the industry is dependent upon two natural resources—the forest for its raw material and water for its power.

Reference has already been made to the various methods employed by different concerns in estimating the value of stumpage in the cost of wood. A company which in former years secured valuable lands and water privileges at low prices can, by simply adding carrying charges into cost, show a figure for cost production far below that of a new enterprise in the same locality. On the other hand, the company may, of course, prefer to hold its own land intact and buy wood in the market, if it believes that more will be gained by increase in value of its timber than will be lost by the higher cost, for the moment, of its wood. The whole problem of the figure at which wood is charged into cost is, of course, inevitably bound up with the whole question of the appreciation of timber-land values.

The question of water power is of much the same kind. Unlike wood, it enters into the strict conversion cost. The development of the power represents a part of the capital investment. It is simply carried in this way and might naturally be expected to yield the same rate of profit on original investment as the balance of the capital employed.

The question arises, however, in case water power in a given section is increasing in value through demand for other purposes and competition of other industries, whether or not earnings to this extent will be adequate to keep an existing business established. In some cases mills are operating near industrial

centres where water power converted into electrical power is selling at a very high price. Such mills, if charging power to themselves at current rates would show a prohibitive cost of manufacture.

#### **Cost of Production of Ground Wood-Pulp.**

Ground wood-pulp schedules are tabulated from 53 pulp mills in the United States, most of them operated in connection with news-print paper mills, and all making mechanical pulp of the grade and quality entering into news-print paper. These 53 mills produced 725,253.9 tons of pulp at a cost of \$10,578,749.32, or at a consequent total average cost of \$14.59 per ton. The lowest cost in any mill was \$9.80, the highest \$21.32, showing a difference between the highest and lowest cost greater than the total lowest cost. The wood cost per ton of pulp ranges from \$6.90 for the lowest to \$13.33 for the highest, with an average of \$10.23. These variations are due partly to local conditions and partly to divergent methods of bookkeeping, as already explained.

(To be Continued Next Month.)



Belgo-Canadian Pulp & Paper Co., Shawinigan Falls, Que., will install another paper machine.

British Canadian Lumber Corporation may build a pulp mill near Prince Rupert, B.C.

W. H. Wiles, who has had considerable experience in English and Italian paper mills, has been appointed foreman of a department in the N. B. Pulp and Paper Company's mills at Millerton, N.B.

Suburban Construction Co., Limited, Toronto, capital \$100,000. To carry on lumbering, deal in pulp concessions and manufacture and deal in products of same. James C. Royce, engineer; A. M. Boyd, student, Toronto.

# **CANADA'S PULP AND PAPER EXPORTS.**

Editor Pulp and Paper Magazine:

Sir,—On page No. 204 you have an article on "Canada's Pulp and Paper Exports." If you look up the tables underneath you will find that they are so wrong that we really do not understand how you care to publish such information. For instance, that Mexico imported 1,807 tons, and the monetary value was \$2,176, i.e., a fraction over \$1 a ton, whereas ground wood pulp yields anywhere from \$14 to \$16 and upwards, f.o.b. cars in Canada. Then under "Chemical Wood Pulp" you have Japan as importing 365 tons, value \$914, which means that a ton should be worth about \$2.90, whereas screenings yield about \$12 and ordinary unbleached sulphites from \$32 and upwards and bleached sulphites from \$45 and upwards. We thought we would call your attention to this so that you can put in a correction, as we know that you are very careful about whatever you issue in your paper.

Yours truly,

Scandinavian American Trading Co.  
President.

[Ed. Note.—These figures, which were taken from a bulletin issued by the Trade and Commerce Department, are evidently incorrect in several instances.]



## **PAPER STOCK MARKET.**

Montreal, June 5, 1911.

The market for rags and stock remains about the same as last reported. Rags are easy. Cuttings are a little scarce.

Following are the current quotations :  
Sheet Cuttings— Per 100 lbs

White ..... \$5.00 to \$5.10  
Unbleached Cottons.... 4.25 to 4.50

Shoe Rag Cuttings—

Bleached ..... 3.75 to 4.25  
Mixed white ..... 2.75 to 3.25  
Light print ..... 2.75 to 3.00

Overall Cuttings—

Blue ..... 3.00 to 3.25  
Brown ..... 2.00 to 2.50

Paper Shavings—

Hard white ..... 2.00 to 2.25  
Soft No. 1 white ..... 1.50 to 1.75  
Soft No. 2 white..... 1.25 to 1.50  
Mixed shavings ..... 0.45 to 0.55  
Ledger stock ..... 1.00 to 1.25  
Printed book ..... 0.90 to 1.00  
Common waste ..... 0.25 to 0.30

Roofing Stock—

No. 1 satinettes ..... 0.75 to 0.10  
No. 2 satinettes ..... 0.45 to 0.50

Sundries—

Old bagging ..... 0.55 to 0.60  
Manila rope ..... 2.00 to 2.15



## **SPECIFICATIONS OF PAPERS.**

Writing paper is commercially subdivided into a number of classes, according to the purpose for which it is used. The characteristics of these classes differ widely, as certain purposes require papers of the highest quality, while others call for but little better than low-grade printing paper.

Writing papers in general differ from printing papers in that they are made from better stock, and are beaten and run to give a stronger, and, therefore, more transparent sheet. They are sized with glue as well as with rosin, and the stock is severely bleached to give a very white paper. This very white paper being only obtained by severe bleaching either of the cotton or linen fabric before it reaches the paper mill, or subsequently of the half-stuff in the mill, is likely to prove much less durable than paper made from the same materials not so severely bleached; the latter will not be so white, however.

The purchaser should bear in mind, therefore, in demanding a very white paper, rather than a natural or cream-colored paper, he is likely to secure a less durable paper, and furthermore one that is more trying and harmful to the eyesight, as with other paper the pur-



chaser is urged to use paper no heavier than is needed, thus effecting a saving in freight, postage, and handling charges, as well as in the first cost of the paper.

Writing paper should be sufficiently sized to give a satisfactory surface for writing ink.

Excess of sizing materials should be avoided, however, as all organic sizings cause discoloring and obliteration.

#### **Ledger Paper.**

(First Grade.)

Stock: All rag .....	1
Ash maximum (per cent.) .....	1
Minimum strength factor .....	..
"    folding factor .....	10
Maximum thickness factor .....	0.75

This paper should be made of new rags; it must be strong to withstand much handling, and firm and well sized in order to leave a good surface after erasure. Paper complying with the above specification is better and will prove more durable than much of the ledger paper now used. Those who desire that their accounts and records be permanent should assure themselves that the ledger paper employed is fully as good as called for by these specifications. Heavy ledger paper will be found suitable for card indexes, which are handled a great deal and subjected to grazing, breaking on the corners and bending.

The preparation of a card index is laborious and costly, and for this reason, if for no other, only the best card should be used.

#### **The Second Grade of Ledger Paper.**

Stock: Rag (per cent.) .....	75
Bleached chemical wood or equivalent (per cent.) .....	25
Ash: Maximum (per cent.) .....	1
Minimum strength factor .....	6.80
"    folding factor .....	2
Maximum thickness factor .....	0.75

A ledger paper somewhat inferior and less durable than the first grade is frequently employed.

This specification will secure a high-grade paper which will give good surface and meet all but the most exacting requirements.

#### **Parchment Deep Papers.**

Stock: All rag.

Ash maximum (per cent.) .....	1
Minimum strength factor .....	1
"    folding factor .....	5
Maximum thickness factor .....	0.8

This is a high-grade paper suitable for the most exacting use of deeds, certificates, legal forms, bonds, and other records of value which are subjected to much handling and folding and where permanency is essential.

Much of the paper now used in recording wills, deeds, mortgages, and other State and county legal proceedings is of poor quality and unsuitable for the purposes for which it is employed.

Many court records are no longer available because the paper used for them could not stand the constant handling to which it is subjected.

They must, therefore, be copied, involving greater expense than would have been incurred in securing a first-class paper in the first instance.

Those responsible for these records may look forward to their early uselessness unless they avail themselves of all means to obtain the best papers.

#### **Board and Letter Papers.**

(First Grade.)

Stock: All rag.

Ash minimum (per cent.) .....	1
Minimum strength factor .....	0.8
"    folding factor .....	3
Maximum thickness factor .....	0.85

This is a high-grade paper suitable for bonds, high-grade commercial stationery partaking of the nature of per-



manent records, carbon copies, bill-heads, etc., and for other important records. It is but little less durable under severe handling and folding than parchment deed paper, and may be employed for records kept flat.

**Thin Bond Paper.**

Stock: All rag.  
Ash minimum (per cent.)..... 1  
Minimum strength factor ..... 0.7  
    "    folding factor ..... 2  
Maximum thickness factor ..... 0.8

These specifications will ensure a high-grade paper suitable for manifold-ing foreign correspondence, etc.

**Ditto, Second Grade.**

Stock: Rag (per cent.) ..... 50  
    Bleached chemical wood  
        or equivalent (per cent.) 50  
Ash minimum (per cent.)..... 2  
Minimum strength factor ..... 0.7  
    "    folding factor ..... 2  
Maximum thickness factor ..... 0.8

This will ensure a fair-grade bond paper, suitable for ordinary business correspondence and for bills and state-ments, etc. Necessarily, such a paper has not the quality of higher grade, but the above specification will ensure a fair-grade paper, much superior to ordinary bond paper.

It is also suitable for so-called "Safety Papers," which are surface colored in such a way that erasure either by rub-bing or the use of chemicals can be de-tected.

This paper is employed in making cheques, notes, drafts, money orders, etc.

**Writing Paper, Medium Grades.**

Stock: Rag (per cent.)..... 60  
    Bleached chemical wood  
        or equivalent (per cent.) 40  
Ash maximum (per cent.)..... 2  
Minimum strength factor ..... 0.6  
    "    folding factor ..... 0.8  
Maximum thickness factor ..... 0.75

This paper is suitable for general cor-respondence, bills, statements, etc., when

a medium grade, rather than a neat, paper is desired.

**Writing Paper, Low Grade.**

Stock: Bleached chemical wood or equivalent thereof.  
Ash maximum (per cent.)..... 2  
Minimum strength factor ..... 0.25  
    "    folding factor ..... 0.25

This is a low-grade writing paper for use where permanency or resistance to wear and tear is not required.

**Low-Grade Envelope Paper.**

Stock: Rag (per cent.)..... 50  
    Bleached chemical wood... 50  
Ash maximum (per cent.)..... 2  
Minimum strength factor ..... 0.5  
    "    folding factor ..... 0.25

Envelopes may, of course, be made of any grade of writing paper, and fre-quently the paper used for the accom-panying letter paper is employed.

As envelopes are but short-lived, they need not be of strong rag paper, it is sufficient that they have a good writing surface, be opaque, strong enough to carry their contents safely, and, appear well when delivered.



**SALE OF IMPERIAL PULP MILLS.**

On the 13th of June, at Osgoode Hall, Toronto, there will be offered for sale by auction the assets of the Imperial Paper Mills of Canada and the Northern Sul-phite Mills of Canada. These include the pulp and paper mills now in opera-tion at Sturgeon Falls, Ont.; the pulp-wood concession on the Sturgeon River, with an area estimated at 2,750 square miles, and said to contain upwards of 13,000,000 cords of pulp-wood; the water-powers belonging to the company at Sturgeon Falls, and the sulphite mills at Sturgeon Falls. The timber limits possessed by this estate are valuable, and recent surveys have confirmed pre-vious reports of their extent and value. Particulars will be found in our adver-tising pages and further information may be obtained on application to E. R. C. Clarkson, 33 Scott Street, Toronto.

### SPECKS AND DISCOLORATIONS IN PAPER.

Even the most carefully made paper is liable to contain tiny specks, which must be regarded as unavoidable. As long as they are inconspicuous, or so rare that they can be got rid of by the rejection of a few sheets, it is of no practical importance to ascertain their cause. Sometimes however, the specks are both conspicuous and numerous, so much so as to seriously affect the sale of the paper. In such cases it is of great moment to ascertain their cause, so as to discover means for their prevention. These causes are very numerous, and specks of very different origin are often so much alike that only chemical or microscopical investigation will distinguish them. Once the composition of the speck has been ascertained, it is often possible to infer its cause; but it is also often essential to know the local conditions under which the paper was produced, and the nature of the manufacturing process, to show at what stage of the manufacture the specks entered, or to what defect in the raw material they owe their origin. The present article is designed to supply a review of the various specks known to occur in paper. Paper specks can be classified in three main groups:—

(a) Those appearing darker than the paper by reflected, and lighter than it by transmitted, light.

(b) Those appearing darker or of a different color from the paper by both kinds of light.

(c) Those invisible, or barely visible, in the freshly made paper, but which are developed in the subsequent processes.

The first group includes resin and grease-marks, scum and sand-marks, and knots in the fibre, and also specks due to minute pieces of silicified or calcified vegetable cells, or of starch granules due to defective preparation of the pulp.

The second includes iron, bronze, lead, carbon, dye, sealing-wax, and rubber stains, as well as dyed fibres,

splinters of wood and straw, husks of cotton seeds, and mold stains.

The third comprises knotted fibre, residues of bleaching powder or calcium sulphite, of starch, iron, resin, grease, and sand, and also small pieces of filling material and woody fibre. Resin specks are known by being removed, or at least losing in transparency when treated with ether. They often develop the characteristic odor of resin when touched with a hot wire. If the stain is not entirely removed by ether, the remainder generally contains iron, and also bodies of unknown origin, which dissolve to a brown solution in caustic soda. There may be also a white nucleus consisting of clotted fibre or of mineral matter, such as gypsum, kaolin, etc. In the former case the fibres can be separated by caustic soda and examined microscopically. Resin stains come either from the wood pulp or from the size. In the former case they are usually larger and more irregular, and less soluble in alcohol or ether than when they come from the size; but exceptions occur, and if there is no information about the manufacture or the raw materials used, it may be impossible to ascribe the true origin. If, however, the stains are found to contain gypsum or calcium sulphite, they can generally be put down safely to the wood pulp.

(To be Continued Next Month)



The North Shore Power, Pulp, Railway and Navigation Co., Clarke City, Que., have recently put in several additional grinders.

\* \* \*

M. Martz, an oiler employed in J. R. Booth's board mill at Ottawa, was caught in an elevator and killed.

\* \* \*

Paper cups are rapidly becoming popular in Toronto and other cities. The Medical Health Officer for Toronto strongly urges their use in the schools and other institutions, and now towels made of tough, absorbent paper are being introduced in the schools and meeting with favor.

**FINISHING SUPER-CALENDERED PAPERS.**

The most important factors which influence the finish obtained on paper by means of super-calenders are, according to an article in "Paper," as follows: First, the condition of the paper as it comes from the paper machine, the amount of loading it contains, its weight and moisture. Second, the condition of the super-calender rolls, the method of sanding the paper rolls, their size and speed. Third, the application of steam to the paper before it passes over the stack.

The condition of the paper is of the utmost importance to a good, uniform finish, which cannot be obtained unless the sheet is properly dried. The edges are most important, and when one edge of the sheet contains more moisture than its opposite, the calender man must try to overcome this defect by running less pressure upon the damp edge of the sheet. This practice is very damaging to the calenders, as the unequal pressure affects the paper rolls. On paper containing damp streaks, it is impossible to secure a satisfactory finish. Over-dried paper necessitates extreme pressure being used on the calender rolls, which, in turn, require large quantities of oil to prevent the bearings and journals from getting hot. This oil works into the edges of the paper rolls, and decreases their life very greatly. Some machine tenders have a very bad habit of tearing small pieces of paper from the edge of the web while it is running from the machine calenders to the reel. In running the paper through the super-calenders, this tear-out often doubles over and marks the paper rolls so badly that it is necessary to "sand" the mark out before the running of the paper can be resumed. On lightweight papers the machine tender and machine help should do everything possible to make as perfect rolls for the calenders as possible, the unevenly wound rolls causing much loss of time and paper. The lighter the weight of

the paper, the more moisture it should contain, for then it is possible to obtain a satisfactory surface without applying much pressure; consequently the breaks are fewer and the paper is calendered more rapidly.

Paper containing a large percentage of mineral loading should never be subjected to hard pressure on the first run through the calender stack, for it will be blackened upon its surface. The best finish on such a paper is secured by running it through the calenders two or three times with but little pressure applied.

The closeness of the sheet affects its finish very much. The sheet made from short and well-milled stock takes a firm and brilliant finish, while the paper made from long stock, which produces a cloudy looking sheet, will not take a finish that could be termed desirable.

Paper taken direct from the paper machine will not take as good a finish as that secured when the paper has been allowed to stand for a day or two subject to the atmosphere of the mill.

The condition of the paper rolls of the calenders is probably the most effective factor in super-calendering paper, and oftentimes the difficulty when paper is calendered is due to the defects in the rolls.

Naturally they should always be kept in first-class condition; that is, free from marks and spots, and perfectly true. Their even shape is usually destroyed by careless "sanding." Should the man sand block, he will produce what is termed a cone-shaped roll, which causes the journals to get overheated. Large quantities of oil are applied to get over the latter trouble but this is not sufficient, as the roll will still continue to heat, when the calender man usually shifts the roll; consequently the stack is placed out of line, and new difficulties appear when the paper is run through it. These are in the line of cutting edges, or straight wrinkles, which cut in two during their passage through the stack. To prevent this as far as possible a tighter friction is carried on the paper,

which takes from it nearly all its stretch, and leaves it so weak that the slightest defect upon its edge will cause it to break in the middle of the stack or when it is leaving the bottom roll. At this point it will double in a bunch, and in most instances mark the roll so badly that an hour or two is lost in "sanding" it. Usually the roll is made more cone-shaped by the extra "sanding," and the binding on the journals becomes more pronounced. To eradicate such troubles it is necessary to pay closer attention to the work of "sanding" the rolls; it must be done so that the trueness of the roll will not be disturbed.

To obtain the best possible finish, the top roll should be as free from marks as the bottom one is. Unless it is kept so, sufficient quantities of steam cannot be used, because the markings on the roll will appear.

The size of the calender roll affects the finish of the paper in the following manner: When the paper rolls and steel rolls are of the same diameter, paper of white shade will blacken when a high surface is given it by heavy pressure on such a stack; but should the steel rolls be smaller than the paper ones this trouble will be avoided. The calender composed of rolls of equal diameter will put a better finish on a heavy sheet than any other.

In the writer's opinion a nine-roll stack is sufficient for any style of finish. I consider the eleven-roll stack a nuisance, for it is too heavy, and subjects the paper to too much pressure during the first time through. To obtain a desirable finish one must proceed slowly and by stages, in which the pressure on the paper is gradually increased and regulated by the operator of the calender. On an eleven-roll stack it is often necessary to skip the bottom nip or last two rolls, which makes the calendaring of the paper much more difficult.

Almost all papers will admit of a certain pressure being applied the first time through the stack, and when this pres-

sure is exceeded, the paper, or rather its surface, is blackened.

The third factor mentioned in this article as having a bearing on the finish of paper is the steam applied to the paper as it is about to pass into the top rolls of the stack. The distance of the pipe from the paper and its arrangement are very important, and it must be so equipped that the presence of water drops will be avoided. The steam-pipe should be far enough from the sheet passing over it so that a cloud of steam will saturate the paper uniformly. The valves used for the regulation of this steam should be of the best quality and easy to adjust.

It remains for the calender man to determine which side of the sheet the steam shall be applied to. Not infrequently the felt side requires it more than does the wire side, but it is customary to use it on the latter side on most grades of paper.



—The Advisory Committee of the American Pulp and Paper Association, which has been supervising the experiments on ground wood at the Government station at Wausau, report themselves very pleased with the progress which has been made in the treatment of jack pine. Samples of paper submitted, however, made of this pulp appeared to lack proper color, strength and finish. It was considered advisable to proceed with the experiments with jack pine with a view of improving these particular qualities. To determine results a run of news paper will be made at one of the mills using the next run of pulp, and experiments will also be conducted on the miniature paper machine at the laboratory in Madison. Samples of each run of ground wood and paper will in future be submitted to members of the committee, together with complete data relating to all conditions during the process of manufacture.



# SENATE COMMITTEE ON RECIPROCITY.

The testimony given before the Committee on Finance of the United States Senate on "An Act to Promote Reciprocal Trade Relations with the Dominion of Canada and for Other Purposes," makes interesting reading. We have from time to time given the gist of some of the evidence delivered. The following is a résumé of part of the evidence of Mr. Norris, the secretary of the News Print Committee of the American Newspaper Publishers' Association:—

Senator Smoot—You do not mention in these pamphlets, do you, anything about print paper?

Mr. Norris—Purely an oversight. If we have not mentioned free print paper to every newspaper and to every Congressman, and everywhere shouted it from the housetops, it is my fault.

Senator Smoot—You did not send these pamphlets to the Senators; they were not prepared for Senators; they were prepared for some other purpose, but your bureau is issuing them. Your bureau was established for the purpose of securing free print paper, was it not, and the words, "free print paper," are not used in any of the pamphlets?

Mr. Norris—I guess that is true. My attention had not been called to it until recently, but—

Senator Williams—You have been engaged, have you not, Mr. Norris, in having literature written and disseminated in favor of the Canadian reciprocity agreement?

Mr. Norris—Unquestionably; with every resource at my command.

Senator Williams—And you thought you had just as much right to do that as anybody had—to have papers prepared and disseminated against it?

Mr. Norris—Certainly.

Senator Williams—And as much right to argue it from every standpoint as anybody else has?

Mr. Norris—Certainly.

Senator Williams—And do you not consider it a crime to put anything upon the free list?

Mr. Norris—On the contrary. Shall I proceed?

Senator Clark—In this literature sent out, on which the Senator from Mississippi has just interrogated you, did you make known to the parties to whom you sent the literature your particular interest in this reciprocity treaty?

Mr. Norris—I think my name was signed as chairman of the committee on paper of the American Newspaper Publishers' Association, was it not?

Senator Clark—I have not seen them; I am asking you.

Mr. Norris—Yes; there is no concealment of that.

Senator Heyburn—Will you kindly state what, if any, officers of the Government of the United States you conferred with in regard to it?

Mr. Norris—Urged it on them?

Senator Heyburn—Yes.

Mr. Norris—I urged it on everybody.

Senator Heyburn—You urged it on the President of the United States?

Mr. Norris—I do not recall, in words or actions, Senator, that I did; I should have done it, and would have done it—

Senator Heyburn—Did you do it?

Mr. Norris—I am not quite clear on that, but I certainly would have done it if the occasion had arisen had I thought it was necessary.

Senator Heyburn—Personally or by correspondence?

Senator Cullom—Mr. Norris, your chief business was to secure free print paper by the preparation of this reciprocity bill?

Mr. Norris—Certainly; well, I did not prepare the reciprocity bill.

Senator Cullom—I do not say you did, but that was the reason—

Mr. Norris—It certainly was a means to that end; yes, sir.

Senator Gallinger—Did you confer with any of the officers of the State Department—Mr. Pepper, for instance—with reference to this matter?

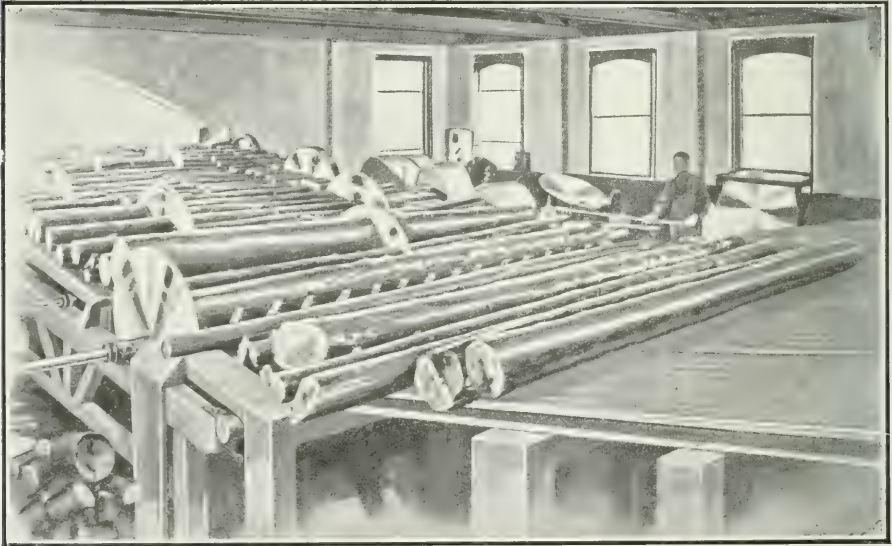
(Continued in next issue.)

## Trade and Manufacturers' Notes.

### RYTHER SLASHER SYSTEM.

Ryther & Pringle Co., Carthage, N.Y., who have been engaged for a number of years in the design and manufacture of wood-preparing machinery for ground wood and chemical pulp mills, have recently issued a catalogue to show more particularly the different machines manufactured by them as a part of the Ryther Slasher System for the reduction of logs of a nearly uniform

the danger of losing logs by flood, of having them frozen in the water by the early approach of winter, or the inconveniences due to the obstruction of a stream utilized for navigation. They may be operated to best advantage when the logs are cut in the forest to a nearly uniform length. It is quite possible to handle varying lengths to considerable advantage on these machines, but the best results are obtained where the logs approach closely to a uniform length.



**Ryther Slasher.**

length to blocks of a uniform short length in large quantities.

The advantage incident to the use of these machines lies in their greatly increased capacity over any other form of cross cutting logs and the reduced labor cost per cord resulting. Another item of prime importance to many manufacturers lies in the fact that with machines of this type it is possible to take the logs from the river and at the same time cut them into short lengths convenient for storage in one-fourth of the time required by the old type of single saws. This saving in time also reduces

Where logs vary widely in length or run to extreme lengths, it is advisable to employ a swing saw to reduce them to lengths of eight feet or twelve feet, and then arrange to pass these lengths over a slasher.

These slashers are built to carry from one to eight saws, according to the length of the logs and the number of pieces to which it is desired to reduce same. The eight saw slasher will cut an 18-foot log into nine 24-inch pieces.

These machines consist of an arrangement of one or more stationary saw arbors equipped with the ordinary type of circular saw revolving at a high rate

of speed and mounted upon a slightly inclined table. This table is provided with a number of feed chains so arranged as to receive the logs automatically from an inclined deck, carry them to and through the saws, and deliver them at the upper end to a conveyor or whatever means may be provided for removing them. The arbors are all made of the best quality of cold rolled, open-hearth steel. This steel is of a superior quality and temper, combining both strength and stiffness.

The catalogue referred to can be obtained on application, and furnishes fuller particulars of the machines.



#### **PATENT BALL VALVE HYDRANT STOCK CIRCULATING SYSTEMS.**

The Ticonderoga Machine Works, Ticonderoga, N.Y., have received several large orders for their patent ball valve hydrant stock circulating systems, which are designed for sulphite, ground wood and soda pulp. This system keeps the stock moving constantly, as the pipe line is always open, either supplying the beating engines or circulating stock back to chest. The Marathon Paper Mills Co., Rothchild, Wis., and the Wausau Sulphate Fibre Co., Mosinee, Wis., have recently placed orders for these patent ball valve hydrant stock circulating systems. One of the largest improved Warren patent double drum winders ever built by the machine works is now under erection on shop floor. This winder is for the Odell Manufacturing Co., Groveton, N.H. The drum faces are 152-inch (one hundred and fifty-two inches) in width.



An exploring party will this summer survey the North Ontario country with a view to an extension of the Temiskaming and Northern Ontario Railway from Cochrane to the Grand Rapids of the Mattagami, and the shores of James

Bay will be examined with a view to locating a harbor when the road is extended to salt water. The Department of Crown Lands has caused a preliminary estimate to be made of the water powers on the Ontario slope to James Bay. From this it is calculated that the Abitibi, Black and Frederick House Rivers would develop 359,300 horse-power; Mattagami, Kapus-Kasing and Ground Hog Rivers 693,800 horse-power; Missinabi and Opaztika Rivers, 292,100 horse-power; Kabinabagami and Kemogami Rivers, 98,800 horse-power; Ogabe River, 216,600 horse-power; Winnipeg and English Rivers, 370,000 horse-power—a total of 2,030,600 horse-power. This region has considerable areas of pulp-wood, and there are rich deposits of iron ore on the Mattagami.



J. J. Dauch and W. A. Harbrecht, of the Hinde & Dauch Paper Co., of Canada, Limited, Toronto, have made arrangements with the Ontario Wind Engine and Pump Co. to manufacture a low-pressure rotary cooker to be used in connection with the manufacturing of straw papers. It is claimed that the manufacturers of straw paper will find that this is a great advantage, as it enables them to cook with the pressure not to exceed five to ten pounds, where with the old style cookers it requires fifty to sixty pounds. The above cooker is protected under Canadian patent No. 118,884, dated June 15th, 1909.



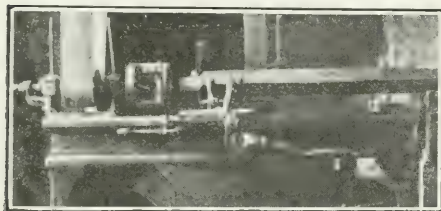
The Jacques Cartier Pulp and Paper Co. are moving their Montreal offices to the St. Nicholas Building.



An order has been made by Cartwright, K.C., Master, on a motion by Imperial Paper Mills v. Clinton Paper Co. for leave to issue a writ for service out of the jurisdiction.

### PAPER PLUG MACHINE.

The Carpenter Wood Plug Works, of Lachute, Que., have put on the market a machine for making wood plugs for paper in rolls, and it is commended for paper mills and other manufacturers using paper plugs. This is known as the "Carpenter Patent Wood Plug Machine." Of this machine, here illustrated, the makers say: With a 2½-inch wood plug we can always show on a trial a capacity of 9,000 per day of ten hours, even with the poorest help, and



Paper Plug Machine.

it only requires one man or big boy to run it. Its capacity is 4,000 to 7,000 per day of ten hours; for it not only turns the plugs, but also bores them out at the one operation. Besides which it is also otherwise most economical in the use of lumber, using any odd lengths of wood, and these down to the smallest piece sufficient to make a plug. The machine is made in two sizes, No. 1 machine making plugs from the smallest size up to 2¾ inches, and No. 2 making plugs from 2¾ inches up to 4 inches.



### PULP CONTAMINATION IN THE HOLLANDER ENGINE.

Lining the hat of the beating engine with sheet copper is in itself insufficient for preventing pulp impurities; on the other hand, the shape of the hat is of great importance. As I recently found, when reconstructing a hollander engine, the sheet copper employed for lining the hat had become rough, and dry pulp had settled on it; only the part of the

sheet copper directly over the breasting was scoured bright. I solved the question by making the trough and hat of concrete hollander engines in one piece and lining the hat with porcelain or glass plates. The latter can be obtained in all shapes and sizes; they are generally employed 6 mm. thick, and are provided on the rear with rough protuberances, so that they firmly adhere in the mortar; further, they have sharp edges, so that the joints can be made very narrow. For inserting and removing the roll a recess is provided in the hat which can be closed by sheet brass. The pulp is prevented from flying back over the roll by a doctor, which automatically adjusts itself so that it is constantly 1 mm. from the roll. Above this doctor is a revolvably mounted spray pipe, which sprays the entire inner face of the hat, and thus prevents a deposit of pulp, which might cause impurities.



### CANADIAN PULP AND PAPER DIRECTORY.

We call the attention of the reader to the announcement in our advertising pages relating to the new edition of the Canadian Pulp and Paper Directory now being compiled. It is the first time a directory of the Canadian pulp and paper trade appears in a volume by itself, previous handbooks having been issued as a section of the directory of the textile trades. This is an evidence of the growth of Canadian industries, and of the great expansion of the pulp and paper industries in particular. Those who have not reported their establishments will consult their interests by doing so at once. See the advertisement for facts requested.



The Partington pulp mill, St. John, N.B., expect to begin the work of extension, by which they hope to double their capacity, by the 1st July.



### NEW INCORPORATIONS.

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Richelieu Lumber Co., Limited, Montreal, capital \$250,000. To carry on the business of lumber operators, manufacture and sell pulp and paper or any products made of same. C. T. Desjardins and P. Paul, of Sorel, Que.; Alphonse Demers and J. S. Beauregard, of Montreal, and U. St. Jean, of Contrecoeur, Que.

National Paper Co., Montreal, capital \$100,000. To build and operate pulp and paper mills. J. B. Morrow and C. M. Gage, E. B. Busted, Campbell Lane and C. L. Buchanan, all of Montreal, We understand that a mill will be built by this company in Valleyfield.

J. & D. Duncan, Limited, Montreal, capital \$250,000. To carry on a lumber and pulp-wood business, acquire or build and operate pulp and paper mills, deal in pulp, chemicals, etc. James and W. Duncan, lumber merchants, Montreal.

The Ontario and Minnesota Power Co.'s powers are extended to carry on business as manufacturers of all kinds of manufactured articles in the manufacture of which hydraulic electric power can be used; to construct, build, acquire or operate pulp and paper mills; to manufacture and deal in wood, wood pulp, pulp and paper of all kinds; to acquire, hold, sell, license or otherwise dispose of trees and wood of every description; to cut logs, pulp-wood, etc.

The Alexander Engraving Co., Limited, Toronto, capital \$40,000. To acquire the business now carried on by John Alexander, and carry on business as printers, publishers, lithographers, paper makers, envelope and paper box makers, stationers, manufacturers, etc. John Alexander and W. J. London, Toronto.

Dominion Industrial Co., Limited, Montreal, capital \$2,000,000. To construct or acquire and operate mills for the manufacture of lumber, mechanical and sulphite pulp, paper, cardboard, paper materials, etc. T. Chase-Cas-

grain, K.C., Alex. Chase-Casgrain, E. M. McDougall and J. J. Creelman.

Garden City Mills Co., Limited, St. Catharines, Ont., capital \$100,000. To carry on all branches of a paper dealer's business; to buy, sell and manufacture all kinds of paper and pulp, also envelopes, blank books, stationery, paper bags, boxboard, calendars, labels, etc. G. B. Burson, barrister; J. K. Kernahan, insurance agent; W. H. Paget, accountant, all of St. Catharines, Ont.

The Colonial Wood Products Co., Limited, Thorold, Ont., has been authorized to increase its capital stock from \$100,000 to \$200,000.

Upper Fraser River Lumber Co., Montreal, capital \$2,500,000. To carry on lumber and pulp-wood operations in the vicinity of the upper waters of the Fraser River in British Columbia and Northern Alberta. F. G. Bush, G. R. Brennan, M. J. O'Brien and H. W. Jackson, clerks, Montreal.



### THE WAY OF PEACE.

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(From the Canadian Century, Montreal.)

Referring to the Reciprocity compact, the Montreal "Witness" says: "We say it, as clearly as it may be said, that the friendship of Canada with the United States is the Empire's greatest asset; and we say that if the Government of Canada had refused the offer of the United States for a free exchange of agricultural products, it would have seriously endangered that friendship; would, perhaps, have made the arbitration treaty between Great Britain and the United States, now happily on the way to consummation, and which means so much to both sister countries and the peace of the world, impossible, at least for the time being, and that it would have been a criminal act."

The "Witness" must have an exceedingly poor opinion of the United States Government and the American people if it believes that.

The United States Government for many years declined every Canadian offer for a Reciprocity treaty. If the Canadian Government exercises the same national right to make the tariff laws deemed most suitable for the present Canadian conditions, are the Americans so unfair and so domineering that they will take hostile action against Canada? We believe the "Witness" is very unjust to the American people.

If Sir Wilfrid Laurier, with his pleasant smile and genial manner, had told President Taft that Canada passed the parting of the ways some time ago, and no longer wanted a Reciprocity treaty, does anyone suppose that the United States would have gone to war about it?

If the Americans are as unreasonable as the "Witness" imagines, the Reciprocity compact will be even more dangerous than we suppose. It would be folly to tie ourselves by tariff agreement to a nation so easily offended. If our mere refusal to enter into such a compact would excite the hostility of the United States what might we expect if, after accepting it and trying it, we found it disadvantageous to Canada and wished to withdraw from it?

Sir Wilfrid Laurier truly said a few years ago that the best way to retain the friendship of the Americans was to make ourselves independent of them.

We do not require a Reciprocity treaty to gain the good-will of the Americans. Most friendly feelings have existed between the two countries for many years.

The "Witness" apparently believes that President Taft's arbitration proposal is merely a bait on the Reciprocity hook with which he is trying to catch Canada.



A large quantity of pulp-wood belonging to B. C. Howard, of Sherbrooke, Que., estimated at no less than between 3,000 and 4,000 cords, was destroyed on the railroad track of the Tring and Megantic branch of the Quebec Central. The loss was at least \$20,000, not covered by insurance.

## BRITISH COLUMBIA PULP AND PAPER NOTES.

(From Our Special Correspondent.)

British Columbia will this year begin to take a more noticeable position in the figures of Canada pulp and paper production. Two mills now erected, and soon to operate, three mills in the course of erection, besides others contemplated, will make an appreciable showing.

The Powell River Paper Co. will begin operations some time in August, turning out 100 tons of paper daily. This is but the initial capacity, and the company will most likely treble this before many months. The buildings and plant are being formed to allow of this expansion.

At Bella Coola the Ocean Falls Co. are rapidly establishing an industry that will employ a thousand men, making it one of the largest in the province. Towards the end of the year they will be turning out 150 tons of wood pulp daily, besides 350,000 feet of lumber. This company possesses 80,644 acres of leasehold and Crown granted timber lands. Here work has been going on for two years. A model town is being built by the company, with school, stores, hotel, and every other necessity of modern life. For their pulp mill twenty-four grinders are being installed, and 20,000 horse-power will be developed.

At a place on Howe Sound, called Mill Creek, about thirty-five miles from Vancouver, the British Columbia Sulphite Fibre Co. are putting up a pulp mill of fifty tons daily capacity. Work on this plant has been going on quietly, and unknown to outsiders, for over two years.

British Columbia's first pulp mill, at Swanson Bay, with a capacity of twenty-five tons daily, is not running at present, but will be this summer.

The \$400,000 soda pulp and stock mill at Port Mellon, recently purchased by Mr. Lester W. David, is now idle pending the decision of the new owners as to its disposition. Mr. David is now

arranging a plan of development of his Quatsino Sound limits and water-powers at the north end of Vancouver Island.

Most of the capital invested in British Columbian paper and pulp enterprises is American, promoters having found it difficult to interest English and Canadian money, and Americans have secured a good foothold in what will be one of the province's biggest industries. The government, in the face of criticism, set aside 554 square miles for pulp-wood purposes and closed them to settlement. It is not the intention of the government to grant further pulp-wood timber leases until the development of the land now leased justifies that action, and incidentally, their previous course. One of the conditions of the lease was that each company was to erect, equip, and maintain within the province a mill with a daily output capacity of not less than one ton of pulp or half ton of paper for each and every square mile included in the lease.

The province of British Columbia has several advantages which should make the manufacturing of pulp and paper profitable. Cheap wood, of course, is the chief one. It is impossible to state even its average price because of there being so far but little demand for it, but its greater abundance should make it a lower priced commodity than in the East. In British Columbia logging can be done all the year round, and low water is seldom a source of trouble. The water-powers of this mountainous province are also higher and with a greater head obtainable. An equable year-round water supply does away with the low water difficulties that have to be contended with by most power-houses. Saw mills are run in conjunction with pulp mills in British Columbia, the best wood being cut into lumber.

While in manufacturing the mills of this province hold an advantageous position, marketing the product will not be the comparatively easy matter it is in the East, but the men spending millions of dollars building mills are apparently

not giving so much thought to that point as to getting the mills running as soon as possible.

A flotation of bonds to the extent of \$50,000 by the Western Canada Bag, Envelope and Box Board Co. appears to be meeting with success, and the company hope to soon start with the installation of machinery in their mill at Sapperton, B.C. They expect when the plant is in operation to produce daily 30,000 pounds of building, roofing and wrapping paper, sheathing, box board, manillas, and so forth. The plentiful local supply of waste paper and wood pulp mill discard will be the raw material. As freight rates from the East are quite high, they should have no difficulty in capturing the Western market for their output. The superintendent is Mr. Noble Heath, one of the most practical pulp and paper men on the continent, with a wide, varied and successful experience in paper mill construction and operation. He is the firm's greatest asset. Mr. Greeley Kolts, whose methods have passed under some criticism, and the founder of the British Columbia Wood Pulp and Paper Co., now owned by Lester W. David, is the company's financial manager. The capital is \$300,000, the head office Vancouver, and the plant, when in operation, should stand about third in Canada's list of similar Manufactories.—N.P.



#### WATERPROOFING COMPOUNDS FOR PAPER.

(Continued from last issue.)

No. 7.—One part guttapercha is carefully digested in 40 parts benzene on the water bath, and the paper is covered with it. This varnish can be drawn or written on, and it does not render the paper transparent or spotted.

No. 8.—A strong, impervious parchment paper is obtained by thoroughly washing woolen or cotton fabrics, so as to remove gum, starch, and other foreign bodies, then to immerse them in a bath containing a small quantity of ca-

per pulp. The latter is made to penetrate the fabric by being passed between rollers. Thus prepared, it is afterward dipped into sulphuric acid of suitable concentration, and then repeatedly washed in a bath of aqueous ammonia until every trace of acid has been removed. Finally, it is pressed between rollers to remove the excess of liquid, dried between two other rollers which are covered with felt, and lastly calendered.

No. 9.—Soak good paper in an aqueous solution of shellac and borax. It resembles parchment paper in some respects. If the aqueous solution be colored with aniline colors very handsome paper is prepared, which is used for artificial flowers.

#### Ingredients—

Melt 10 pints, hot water,  
30 ozs. glue,  
3 ozs. gum arabic.

#### In another pot

30 pints, hot water,  
2 ozs. soap,  
and 4 lbs. alum.

Mix both liquors together in one pot.

This constitutes compound No. 1.

In another pot heat—

$\frac{1}{2}$  gallon benzole,  
and 1 " paraffin.

and melt in 24 ozs. resin.

Let it boil until it attains a moderate degree of consistency. To these materials, resin, oil, and copal or mastic varnish may in some cases be added. This is composition No. 2. First dip the article to be waterproofed into the composition No. 1 in a heated state, and then dry it. Next apply No. 2 in a cooled state with a brush or in any other convenient manner. Care should be taken to avoid igniting the benzole as it is highly inflammable.

#### Incombustible Ink and Paper.

This ink, which can be used either in writing or painting, is an English invention, and is made according to the following receipt:—22 drachms of finely-ground graphite, 12 grains of copal or other resinous gum, 2 drachms of sulphate of indigo, are thoroughly mixed

and boiled in water. The graphite can be replaced by an earthy mineral pigment of any desired color.

The pulp for the paper is composed of:

1 part of vegetable fibre,  
2 parts of asbestos,  
1-10th of borax,  
and 2-10ths of alum.



—The public offering of £550,000 of 5½ per cent. cumulative preference shares, which was opened by Edward Lloyd, Limited, of London, and Sittingbourne, Eng., on the 8th ult., met with a gratifying response, the entire issue having been taken up, and, in fact, oversubscribed by the following day. The company owns freehold pulp and paper mills and forest lands in Norway and a large paper mill at Sittingbourne, Eng., with a total value of £832,300. Net assets are valued at £1,347,500, or about twice the amount of the preference shares, not taking into consideration good-will. Net profits on the paper and pulp manufacturing end of the business averaged over £140,600 for the past three years. The well-known newspapers, "Lloyd's" and the "Daily Chronicle," have been acquired by a separate company. Frank Lloyd is chairman and governing director, and the company has a branch in the Eastern Townships Bank Building, Montreal.

Two new tissue mills will shortly be attracting attention in Ontario if present intentions are carried out. The one called the Interlake Tissue Paper Co., which proposes to erect a mill at Thorold, and in which Mr. I. H. Weldon is interested, we have already referred to. The other is one in which L. H. Gardner, president of the L. H. Gardner Paper Co., Mumford, N.Y., is largely interested, under the name of the Garden City Mills Co., Limited, St. Catharines. They will make use of the old Lincoln paper mill on the Welland Canal, near Merritton.



## PINE, OR PAPER YARN, FIBRE.

### A New Fibre for Textile Manufacturing.

A paper on this subject was recently read by Carl Pontus Hellberg (Halmstad, Sweden), of which the following is an abstract:—

I have now for many years studied the possibility of finding a new textile fibre which would at any rate be a partial substitute for jute, cotton, hemp, and flax fibres, as the world's markets, especially for jute and cotton, are continually being disturbed by bad crops, and consequently higher prices. Spinners and weavers of coarse counts would benefit directly by having a new yarn at their command, and the introduction of, say a million bales of fine fibre, would have the same effect as the introduction of another million bales of cotton from some new field; and by freeing so much raw cotton or flax as the pine fibre displaces it would naturally reduce the cost of those fibres, and lead to an indirect benefit to those who use finer counts than can be made from pine.

The fact is now established by numerous experiments carried on for several years that this new pine fibre in the shape of paper yarn is an excellent substitute for other textile fibres. I have studied paper spinning for ten years, and beg to put before you what I have learned and experienced during that time. I have not been able to trace the first idea of spinning paper, but for a long time the Chinese have used paper strips, spun by hand, for making up parcels, and even to-day they use such substitutes for packing-twine. I have also seen a sample of hand-spun white paper yarn from Japan, which was very strong, but altogether too dear for popular use. The inquiries I have made about the paper from which the Japanese paper yarn is produced go to prove that it would cost about 2s. per pound to make the same kind in Europe.

Of late years the first attempts to spin paper for the textile industry were made in the United States, and the produce

was principally used for making mats. In New York a manufactory has been in existence for this purpose for twenty years, and I have seen samples of the produce in the large shops in Paris, where they seem to find a ready sale. In Europe it was not until 1890 Mitscherlich obtained a patent for a "mode of producing spinnable fibre from wood," and in 1895-97 Claviez obtained a patent "for producing yarns from spun paper strips and a spindle for the purpose." Türk in 1892, Kron in 1901, and Leinweber in 1901 all obtained patents for producing yarn from "pulp," which, however, would be more correctly described as half-made paper. The first yarn made from pulp was the so-called "Licella Yarn" at the works at Waldhof, near Mannheim, in Germany. The Licella yarn department of these works was closed in 1907-08 in consequence of unsuitable machinery, the high cost of production, and the unsatisfactory strength of the yarn. The world at large is indebted to this firm for being the pioneers of the industry, but after spending a large sum of money they were convinced of the unsuitability of half-made paper for spinning into a serviceable and cheap yarn.

There still exists at Hämmer, in Germany, a pulp-spinning works on Kron's method. This yarn goes under the name of "Silvalin," and I venture to say it is the best pulp yarn that can be produced. So far as I know, the Silvalin yarn was first made at Elberfeld Paper Mill, in Germany, under a separate department called Silvalin, but the manufacture ceased in 1909, and a company for making yarn in Berlin which owns the Kron's patent took over the works, which were transferred to Hämmer, Rheinland, Germany. This yarn is the best pulp yarn I have seen, and very suitable for certain purposes, but there is much waste made, and too much labor required. Added to this is the difficulty of keeping the rolls sufficiently moist until the spinning process itself takes place, especially if they have to be kept over night. I, therefore,

consider the Kron method unsuitable for a production of 5,000 to 10,000 tons.

In my opinion, in order to obtain an absolutely first-class yarn from pine fibre, finished paper made from the very best sulphite or sulphate pulp must be used, this pulp to be made from the slowly-growing white pine which is found in Russia, Finland, Sweden, Norway, Canada, and the United States. The spinning of yarn from finished paper gives that yarn a suitable strength. It has also been proved by the trials I have made that Swedish "Kraft" paper gives a yarn 20 to 25 per cent. stronger than other kinds of paper. Putting aside the advantage which is gained in obtaining a stronger yarn by using finished paper instead of pulp, it has been supposed that the cost of producing yarn made from pulp direct would be less than the finished paper, but this is not the case. The reason is that "pulp" is not the correct way of describing the material; it should be called "half-made" paper, as the pulp, in order to be brought to a spinnable condition, must be subject to the same treatment as in making paper, with the exception of the finishing.

As far as I know, the manufacture of yarn from finished paper for textile purposes was carried out in Europe, first in Saxony, afterwards in Austria. In both these countries this paper yarn, which is called "Xylolin" is used for backing carpets and for making carpets exclusively from paper yarn. These makes are to be found in many places in Germany, and find a ready sale, although the prices are altogether too high; but these spinning mills do not make their own raw material, that is, the paper itself. Although Xylolin yarn is of exceedingly good quality, the patented method which is used, namely, Claviez's of 1895-97, is not suitable for a large industry, the manufacture requiring too many operations to make the yarn from the paper. After I got to know the Claviez method in 1908, I soon discovered that the machinery for the cutting and preparing processes, and also

for spinning, left much to be desired. It was only in 1909 that I succeeded in inventing what I believe to be the only possible method by which satisfactory results can be obtained. I am convinced that my combined "cutting, dividing, and rolling-to-bobbins machine" is the last word as regards this process. I have obtained a patent for my invention in Great Britain and in India, and patents are applied for in other countries. Mr. Jagenberg, Düsseldorf, has made experiments in constructing ring spinning machines for paper, and succeeded beyond expectations. I, therefore, intend to use his spinning machine with some alterations suitable for my large-sized paper strip bobbins. This spinning machine has also the advantage of being only nine yards long with 100 spindles, as compared with the Claviez machine, which is about 16½ yards long for 120 spindles. I thus require only one operative at each side, whereas Mr. Claviez must have two. To produce yarn from one roll of paper, say, 19¾ in. width and 23½ in. diameter, and cut in 3-16 in. strips, I only require nine operations, against Mr. Claviez's 102, as will be seen from the following:—

Paper roll, size 19¾ in. width and 23½ in. in diameter, to be spun into yarn out of 3-16 in. strips, by old methods, namely: The strip rolls are placed horizontal for spinning, the usual diameter of these rolls in inches wound upon an iron ring of the same width, 3-16 in. [Mr. Hellberg detailed the operations.]

Now I will show how the same quantity of paper is cut and spun by my new methods, also into the same yarn number out of 3-16 in. strips as follows:—

Operation 1.—Placing the paper roll into the cutting machine and passing the paper between the feeding rolls and cutter rolls to the feeding rolls of the dividing and rolling-to-bobbins machine.

Operation 2.—Placing 100 bobbins in the dividing and rolling-to-bobbins machine.

Operation 3.—Fastening the strip ends to the bobbins—no pasting.

Operation 4.—Cutting and winding up to bobbins the whole paper roll in one operation at a rate of 44 yards per minute.

Operation 5.—Taking away the filled bobbins direct to the spinning machine.

Operation 6.—Leading the strips to the spindle.

Operation 7.—Spinning.

As I have by my methods to deal with only 100 bobbins instead of 1,200 and using 50 spindles as before, I need only one change instead of 24. One change makes

Operation 8.

Operation 9.—Taking away empty bobbins.

Thus nine operations compare with 102, which means a great saving of labor, time, material, machinery, space, and upkeep. Further advantages: This spinning machine having 50 spindles on each side in a length of 315 in., one spinner can attend one side. By the old methods there are 60 spindles in a length of 590 in., and it is impossible for one spinner alone to attend to one side. The paper strips are damped at the time it is spun; therefore, it can be stored in unlimited quantities without damage. By the old methods the strips are damped before being made up into rolls; therefore, these rolls must be spun within a certain time, or they go dry and cannot be spun at all.

In order to show the commercial value of my methods for dividing the paper strips and rolling them on bobbins for spinning purposes I shall compare one mill producing about 10,000 tons of paper yarn per year of 300 working days, of ten hours, furnished with the machinery I am going to use, with one mill using the machinery now worked in Germany for the same purpose.

(Continued in next issue.)

## LITERARY NOTES.

The Acton Publishing Co., 61 John Street, Toronto, have changed the name of the "Undertakers' Gazette," which was formerly published as a section of the "Furniture and Upholstery Journal." This will be published as a separate journal under the new name of "The Funeral Director and Embalmer." The "Furniture and Upholstery Journal" has attained a wide reputation in those trades, and the well-known energy of the Acton Publishing Co. will no doubt establish a new journal in equal favor with undertakers throughout Canada.

\* \* \*

The Board of Trade of Toronto has been inspired with new life, partly, no doubt, as a result of the new membership campaign, which has proved so successful this year. The board is to be congratulated upon its practical enterprise in sending a commissioner into Northern Ontario to review the prospects of that promising region. It could not have selected a better commissioner than F. W. Field, of the "Monetary Times." Mr. Field's investigations into financial, commercial and industrial subjects, as presented in the "Monetary Times" in the last two or three years, have marked a new era in the commercial journalism of this country. To a keen insight and good judgment as to the proportion of things Mr. Field unites a racy, attractive style and untiring energy. His report on the conditions and on the outlook of Northern Ontario is now appearing in a series of letters in the "Monetary Times" to be reprinted by the Board of Trade as a special report, in pamphlet form.

\* \* \*

Under the authority of the Commission of Conservation at Ottawa an instructive paper by Dr. Chas. A. Hodgetts, read before the late annual meeting of the Commission at Quebec, has been reprinted in book form on the subject of "Unsanitary Housing." Dr. Hodgetts has laid the people of Canada under a debt of gratitude in presenting

a striking array of facts concerning the influence of the dwelling upon the life of the family. The subject is illuminated by some pictures of unsanitary houses and streets in various cities in Canada, and should be studied by all who are concerned in the health of the people. A very valuable paper by C. C. James on "Agricultural Work in Ontario" is bound up with this treatise. Mr. James, as Deputy Minister of Agriculture, has learned some of the weak points of agriculture in Ontario, and, in view of the discussions on such subjects as Reciprocity, the facts presented by Mr. James and his plea for intensive farming and a scientific study of the problems of the farm should be widely read.



#### NEWFOUNDLAND NOTES.

(From Our Special Correspondent.)

June 1st, 1911.

So successful has been the operation of the Harmsworth paper mills at Grand Falls, and so great is the demand for their products, that the capacity of the mills is to be doubled by the installation of two additional paper-making machines during the present season. About 95 per cent. of all the employees at the Grand Falls pulp and paper mills now are Newfoundlanders, who have adapted themselves to the new work, and have grasped such a thorough knowledge of the operation of the machinery that they are turning out an article superior to that imported from American mills, and everything is working so satisfactorily that the company has been enabled to replace its staff of American experts by natives of the country.

The Albert Reed Co. has started operations in the manufacture of pulp at Bishop Falls. Their mills were first put in operation on 28th April, and are now giving every satisfaction. A large

gang of men are at work, and the products of the mills are being shipped to England to supply the company's paper mills in that country.

The Albert Reed Co. have a cut of eighteen million pieces of timber in the Exploits River for their mills at Bishop Falls. The unusually dry spring, however, has hampered considerably in the drive. A change in the weather conditions of late, however, has made conditions more favorable, and prospects are now bright that the company will suffer very little further inconvenience.

The SS. "Tritonia," the new ice-breaker of the Anglo-Newfoundland Development Co., loaded five thousand tons of paper and pulp at Botwood, the shipping port for the Grand Falls and Bishop Falls paper and pulp mills, and sailed for England. This was the first shipment since navigation opened.

The SS. "Kastalia" brought a cargo of supplies and material for the Grand Falls paper mills to Botwood, and is now loading paper and pulp for England.

The paper for the Coronation issue of several of the Harmsworth publications was manufactured at the Grand Falls paper mills. The paper is of a specially prepared material, and was manufactured from native spruce.

A company of American capitalists, including W. C. Langley, a New York millionaire, have an option on some timber limits and water-powers at Corner Brook, Bay of Islands. Surveys are now in progress, and, should same prove satisfactory, paper and pulp mills will be erected on the banks of the Humber without delay equal in capacity to those now in operation at Grand Falls.

A party acting in the interests of the proprietors of a number of American publications are now looking over some timber limits and water-powers at Hawke's Bay with the object of erecting pulp and paper mills in that vicinity.—A. L. B.

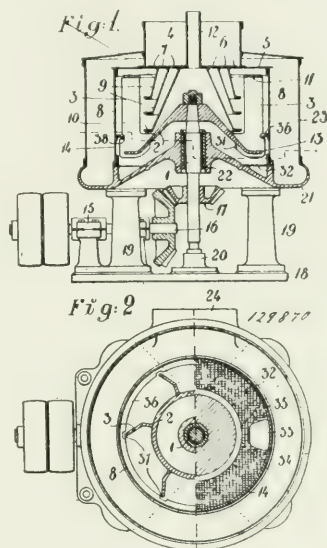


## LAURENTIDE PAPER CO.

The official "Gazette" gives notice of an extension of power of the Laurentide Paper Co., Limited, so as to include the following purposes: (a) To enter into arrangements with any municipality within which, or adjacent to which, the company's works are located, for the encouragement of municipal improvement, and to assist therein or contribute thereto, in such manner as may be deemed advisable; (b) To establish and support, or aid in the establishment and support of associations, institutions, funds and conveniences calculated to benefit the employees or ex-employees of the company, or its predecessors in business, or the dependants or connections of such persons, and to grant pensions and allowances and to make payments toward insurance, and to subscribe or guarantee money for charitable or benevolent objects, or for any exhibition or for any public or general object; (c) To issue receipts, negotiable or otherwise, for merchandise stored with the company, and to loan money to, guarantee the contracts of, or otherwise assist any person, firm or corporation with whom the company may have business relations; (d) To invest the moneys of the company, not immediately required, in such manner as may from time to time be determined; (e) To sell, or otherwise dispose of the undertaking of the company or of any part thereof for such consideration as the company may deem proper, and in particular for shares, debentures or securities of any other company having objects in whole or in part similar to those of this company; (f) To distribute amongst the shareholders of the company in kind any property of the company, and in particular any shares, debentures or securities of any other company, belonging to the company, or which the company may have power to dispose of. The company will shortly increase its capital, and it is prophesied that it will pay 6 per cent. on the new stock.

## RECENT CANADIAN PATENTS.

No. 129,870.—Separator for Wood Pulp. A. H. Holden, Langed, Sweden. This is a centrifugal separator, in which the hopper is provided with openings at the bottom. A rotating element is also provided with radially disposed curved blades or vanes extending upwardly therefrom, and connected together at



their upper ends, and provided with widened lower portions. There are also several colonial plates arranged beneath said hopper to convey the material at different heights on to and between the upper portions of said blades or vanes, and plates being provided with lower horizontal edges, a perforated casing arranged about said vanes, and a second casing of increased diameter arranged about said first-named casing.



"The Paper Maker's Pocketbook," by James Beveridge, reviewed in our April number, may be obtained through the "Pulp and Paper Magazine." The price to any address in Canada or the United States is \$3.50.

## Pulp and Paper News.

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R. W. Brown, of Washington, D.C., proposes to establish a paper box factory in Calgary if he can obtain certain municipal privileges.

\* \* \*

In connection with the recent reorganization of the British Columbia Wood Pulp and Paper Co., of Port Mellon and Quatsino, B.C., under the control of Lester W. David, Vancouver, it is stated that plans are now being made for the installation of machinery. The company's pulp property at Quatsino will also be developed.

\* \* \*

The mills in Ottawa district, as soon as they were favored by high water early last month, started operations. As a matter of fact the high water came so suddenly that it hampered operations somewhat. Floods from tributary streams to the Upper Ottawa played havoc in some parts, and several dams were swept away.

\* \* \*

The "Globe" Printing Co., Toronto, has been authorized to increase its capital from \$500,000 to \$1,000,000, and to make the par value of its shares \$100 instead of \$500. Financial statements showed the business of the past three months to have been most satisfactory. The old directors, Senator Jaffray, Sir Geo. Ross, A. F. Rutter, Hugh Blain, N. W. Dowell, K.C., were re-elected.

\* \* \*

The Wayagamack Pulp and Paper Co., Three Rivers, Que., have given a contract for complete equipment of motors, mostly of the squirrel cage induction type, to the Lancashire Dynamo and Motor Co., Toronto. The switch gear and main switchboard for controlling the whole plant are of Eckstein, Heap & Co. (Manchester, Eng.) manufacture, the agents in this country being Chapman & Walker.

\* \* \*

Ritchie & Ramsay, Toronto, manufacturers of coated paper and cardboard,

etc., are undecided as yet as to what extensions will be made in their mill at New Toronto, which was established there nineteen years ago. They had been thinking of making an expenditure of something like \$75,000 or \$100,000 in increasing the capacity of that plant. But certain disadvantages of that location in connection with electric power, sewerage, etc., have caused them to hesitate before finally making plans, especially as certain other municipalities would be glad to offer concessions to assist in the erection of a branch mill.

\* \* \*

"From the Great Lakes to the Atlantic" is the title of an interesting illustrated pamphlet issued by the Montreal, Ottawa and Georgian Bay Canal Co., Sparks Street, Ottawa, showing some of the leading features and the commercial advantages of the projected Georgian Bay Canal. One paragraph of the report is as follows: "Pulp-wood, pulp and other forest products would also be a source of very considerable traffic, which is bound to grow as the demand increases in Europe and the United States. The Georgian Bay Canal being tributary to a very extensive forest area, would not only be the cheapest route by which these commodities could be shipped out, but it will also provide, owing to its large supply of water power, the most favorable sites for the establishment of mills. Pulp mills in operation to-day adjacent to the route of the canal have a capacity of 3,000,000 tons per annum, which, including the raw material, entails the handling of at least 600,000 tons. Cheap transportation will render merchantable from the whole of this district vast quantities of birch, maple, hemlock, tamarac, ash, oak, elm, etc., which, under present conditions, cannot be moved, and which will find a ready market about and west of the Great Lakes."

FOUND IN THE BROKE.

(From "Paper.")

A French-Canadian working on No. 4 beater and old Dick Goggins, a helper on No. 8 beater, in a mill in the wilds of Maine, were talking over the Canadian Reciprocity measure the other night, and their conversation ran something like this.

Old Dick started the tack by asking the Frenchman. "Frenchy, when you goin' back to Canuck?"

"Oh, I guess I go wen de Congress fix up wid my frens about sellin' de paper in Noo York."

"What are ye talking about, what Congress, what frens?"

"Why, don' you know dat de fellers in de Congress say my frens in Canada can make de paper and sell him in de U.S. wid out pay for it?"

"Oh, yes, you're talking about the Canadian Ray-say-prosperity bill. Oh, yes, I know all about it. I suppose you're goin' up there to take charge of all the new mills, ain't ye?"

"Mebbe, praps; you see my broder-in-law's uncle, he go by wot he tanks, and he say ef dey tak off de charge for de pap-er wot cross de line, he build wan, two, tree beeg mills, for he can mak big fortune in wan year."

"And wot do you think we're goin' to be doin' all this time?"

"Oh, all de big mill here, she stop, for she cannot get de wood for which to make de paper, and even ef she don't stop, she can't make the paper so cheap like wot my broder-in-law's uncle can, and he can firs sell all he mak."

"Who's bin tellin' you bout this thing, Frenchy?"

"Oh, I hear a feller speak about from de paper bout it, an he say, de newspaper mans is so big dat he can git all she want."

"Well, you Frenchmen are the limit, but let me tell you, if they do pass that Canada what ever you may call it, inside of wan year, every paper mill in Canada will be owned by the fellers on this side

of the line, and all the bosses will be Irishmen like meself and Dan McGann, an' you'll be doin' just the same kind of work you ar now, only you'll not be gettin' as much pay. And these newspaper fellers will pay more for this paper than they're payin' now. You can put that in your pipe and smoke it, me bucco. I wasn't born yesterday, and I don't slape wid me eyes open neither, and I've bin followin' this Canadian game iver since it was started by that feller who is loaded with ignorant intelligence about paper making. I think his name is Norris; he's the feller who went into some of the mills and tried to show them how to make money out of imagination. He got so many figures he got lost, and ever since he's bin tryin' to make those fellers who make the law see somethin' where there is nothin'. He's had us all in an uproar, and I would have never let that paddle go in the beater the other night, only I was thinking what I would do if I was some of these mill owners. I tell you, Frenchy, this lettin' the Canadians and their paper come in here for nothin' is the biggest fake game that was iver attempted, and I don't think its goin' to get by the gintlemin of the capital of the county, even though some of these newspaper fellers do say they'll murder the political aspirations of those gintlemin if they don't make it a law."

"Well, Dick, I don' tank I know wot you talk about, but I go back to home pretty soon, I guess, for dey want all de French paper mans wen dey build de paper mills, to run it, don't you see?"

"Yerra go on, you thafe. I thought you didn't know anything about it, anyway."



The Sterling Blower Co., Hartford, Conn., have just issued an illustrated catalogue describing their slow-speed, low-power exhausters, which are the result of many years of experience in the installation of exhaust systems. These machines, in comparison with others, are said to have shown a higher efficiency of 10 to 25 per cent.

## RATE OF PRODUCTION OF SULPHITE CELLULOSE.

Differences in the regulation of the boiling process in the manufacture of sulphite cellulose with regard to the composition of the sulphite solution, duration of boiling, temperature and pressure influence not only the nature, but also to a great extent the rate of production of cellulose. The following tests were made for determining the fluctuations in the yield.

A bronze, lead-lined experimental boiler of 2 litres contents heated on the oil bath, i.e., indirectly, was used for the experiments. It was charged with 300 g. wood and  $1\frac{1}{4}$  litres of sulphite lye, and provided both with a thermometer and manometer and with devices for steaming and relieving.

The time of boiling was divided into the following periods:—

- (1) Steaming ( $2\frac{1}{2}$  hours).
- (2) Boiling up to  $105^{\circ}$  C.
- (3)  $2\frac{1}{2}$  hours standing at  $105^{\circ}$  C.
- (4) Boiling up to the desired high temperature.
- (5) Final boiling ( $7\frac{1}{2}$  to 40 hours).

The boiling tests yielded the following results:—When employing a sulphite solution of 3.2%  $\text{SO}_2$  + 1.1%  $\text{CaO}$

at  $114^{\circ}$  C in 35 hours... 60.057% output  
 114 C in 40 " ... 53.774 "

When employing a sulphite solution of 4.0  $\text{SO}_2$  + 1.0  $\text{CaO}$

at  $114^{\circ}$  C in 20 hours... 54.417% output  
 114 C in 35 " ... 50.000 "  
 120 C in 10 " ... 53.500 "  
 125 " ... 51.017 "

and so on (see above).

With regard to the nature of the cellulose obtained under the above conditions it may be mentioned that the maximum rate of production at the various temperatures corresponds in each case to an exceedingly strong pulp which is not suitable for bleaching purposes and must be treated in the refining engine. On the contrary, the boiling processes having the lowest yields result in very soft, readily bleach-

able cellulose which it is not necessary to treat in the refining engine, indeed such treatment would be injurious. Further, it is to be noted that when the boiling resulted in the same yield but was carried out under different conditions, e.g., at

$114^{\circ}$  C in 40 hours with 53% rate of production, and

$120^{\circ}$  C in 40 hours with 53% rate of production

there were great differences with regard to bleaching quality, etc.

From the above numbers it followed that 100 parts of dry wood supplied from 39 to 60 parts of absolutely dry cellulose according in each instance to the mode of boiling. The results obtained agree well with the observations made in practice.



## ADULTERATION OF PAPER MAKING MATERIALS.

With many materials like aniline dyes, mineral coloring matter and pigments, etc., there is so much room and opportunity for adulteration to counterbalance a drop in prices. And this adulteration can be effected in such a manner that when the price is taken into consideration it can hardly be said that the quality is always inferior in respect of the work produced from a known weight.

Thus, with aniline dyes and pigments the addition of chalk calcium, sulphate clay and other harmless substances is sometimes made in order that an apparently cheaper article may be offered for sale, in which cases it is obvious that the cheapness is compensated by loss of coloring matter due to the existence of such non-coloring substance. The detection of added substances and of actual impurities is not an easy matter for any but a trained chemist, and, although in some cases various tests are fairly reliable, yet these can be only trusted when the substances tested behave or react as described.

(Continued on Page 54.)



# The Pulp <sup>AND</sup> Paper Magazine of Canada

Vol. 9—No. 7.

TORONTO, JULY, 1911

(Canada \$1. a Year  
(Single Copy 10c.)

## Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

**Subscriptions:** Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage, \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required, four days earlier. Cuts should be sent by mail, not by express.

**BIGGAR-WILSON, Ltd.**

**PUBLISHERS.**

**Offices, Confederation Life Building,  
Toronto, Canada.**

Western Representative: John MacLean, 417 Grain Exchange, Winnipeg. Telephone, Main 4636.

## WORDS AND THEIR MISMEANINGS.

How faulty our language is in conveying exact ideas, and how often we stumble on a word, which to the unreflecting mind suggests the very opposite of the moral condition involved. Take, for example, the word Reciprocity. A simple old lady, of whom the writer asked a definition of the word, said: "It's some kind of charity, isn't it?" It was not far from the root idea conveyed to the average mind—a return in kind for some act of benevolence without the faintest suggestion of an act of injury to anybody else related to the reciprocal action.

But the vast majority of our readers who have followed us in these discus-

sions, will agree that political reciprocity, so far from being an act of unaffected benevolence, is simply bartering away one man's position and property for the specific advantage of another man. And this act in which the wolf is parading under the mask of the innocent sheep, is made the more grievous and insulting by the pretence that all this spoliation is done in the interests of "the toiling masses." If by reciprocity the newspaper publishers of the United States are able to get free pulp and newsprint from Canada, will they reduce the cost of their daily papers for the "toiling masses" from the present price of a cent to half a cent? If so they will have to introduce a new coin, which has not been proposed.

As in the case of cheap paper, so the notion of benevolence is carried out in farm products. "The toiling masses" get wheat free in the raw state, valued at a dollar a bushel, but they still pay duty on flour and on bread and biscuit valued at three dollars per the equivalent of a bushel; they get free live cattle, but still pay duty on their meat in any manufactured form, in which the cost of animal food is three or four times that of the living creature from which it is produced; and so all along the line.

In the sacred name of international amity it is proposed in this agreement

to cut the paper industry in twain at that point which safely secures free paper for the daily newspaper publishers and so renders a large percentage of the pulp and newsprint mills a mass of wreckage. If this act of spoliation were accompanied by the solace of money compensation no principle of justice would be outraged, but there is no hint or suggestion of this. On the contrary, from many quarters in the press and in Congress, the whole class of newsprint mill-owners and pulp manufacturers has been branded as criminals, because some of them have combined their mills in one corporation. If there is crime in the mere fact of combination such as prevails in practically all industries, and which is not always accompanied by unfair prices, then the remedy should be applied all round. But even in the case of the Standard Oil Co., it has not been proposed to confiscate the property, but only to resolve the combination into its original constituents. The reciprocity agreement does not propose compensation, nor will it effect the dissolution of companies, but it proposes to wreck certain branches of a large and legitimately founded industry, which at the present time, according to the showing of the new Tariff Board's report, are operating under adverse conditions as compared with Canadian competitors. If the United States pulp and newsprint mills are making undue profits, why do not the newspapers establish their own mills and supply themselves, as many of the British newspaper owners do? There is more capital at the beck and call of American newspaper publishers than of British publishers.

We can assure the pulp and paper manufacturers of the United States and

all others involved with them in this wrong, that the Canadian pulp and paper manufacturers take no pleasure in gaining trade at the cost of outraged justice. If we could violate the principle of fair play under such pretexts, our own day of retribution would arrive in due course. As a matter of fact, if such a discriminating agreement were put in force—which we believe will be prevented by the voters of Canada—it would work a result almost as strangulating to the higher branches of the paper industry of Canada as it would be to the newsprint and pulp branches of the United States. The recoil of this act of confiscation will come upon those who conceived it.



#### THE ROOT OF THE ROOT AMENDMENT.

What is at the root of the Root amendment, which was defeated in the United States Senate? This is a conundrum to many a layman, who wonders why the conditions of the pulp and paper agreement were subject to a special interpretation clause.

We may extract the cube Root thus: The crown lands of the forested provinces of Canada, which this agreement seeks to get at in the interests of the newspaper publishers of the United States, are owned by the provinces and not the Dominion. To have embodied in the agreement a condition which would have set up federal assumption on these, would have brought the authors into a disastrous conflict with public opinion on the question of provincial rights. "But," suggested some one at the conference when the agreement was

prepared, "the Dominion Government can tear down the fence, and it will then remain for the provincial governments to keep the cattle out." These words were probably not used, but the idea, whether spoken, unconfessed or unconsidered, was there. And so the agreement was drawn in such a way that this aggression on the rights of the people of these provinces has been invited, and strong influences, whether of persuasion, coercion or corruption—or all three combined—are to be brought to bear to exploit and despoil the forest assets of the country. We do not charge that this spoliation was the deliberate purpose of the Canadian negotiators—indeed, in the haste of drawing up the agreement the ultimate effect was perhaps not seen—but, if this is the danger, should our government not withdraw?

Unfortunately, at least one of the negotiators feels that the honor of the country is pledged in the agreement. But this, though creditable to his personal character, is assuming too much. If he has made a mistake then his judgment, and not the honor of the country, is in question. His dilemma, for which he should have less censure than sympathy and pity, is that of a young man who has got into bad company, and has been persuaded to wrongfully take part in embezzling funds belonging to his employer. In such a situation he must either break faith with his employer or his companions. The alternative is a hard one—as most of us at one time or another in life have found—but we must either face the sneers or rage of the impenitent companions, or the prospects of the penitentiary. It now looks as if some politicians were prepared to go to

the political prison rather than repent. In case of conviction it is to be hoped the jury will recommend a light sentence for the past record of the accused was, on the whole, very good, till unfortunate companionship led them astray.



#### THE PORCUPINE CALAMITY.

When we read of the terrible visitation by fire in the Porcupine mining district of Ontario, with its death list and suffering, equal to that of a great battle, we are forced to halt and ask ourselves whether this perpetual chase for wealth is not a waste of effort and a misdirection of human ambition which brings unhappiness at the end. We cannot apply the question to all individuals alike, for many of these poor victims were poor and only hoped to earn a decent living for themselves and families, but of the movement itself we will have to confess we cannot serve God and mammon, if we would render the best service to our country.

Taking the mere material losses, there is no doubt whatever that the destruction of the forests, brought about probably by some thoughtless smoker or heedless prospector leaving a smouldering camp-fire, will prove a far greater calamity than all the havoc wrought in the towns and mines. It will take more than a generation to restore this timber and twenty generations to replenish the surface soil ruined by the fire. The timber, it happens, was chiefly on crown lands, and consisted chiefly of spruce, balsam and Jack pine.

While these fires devastated the Porcupine district in Ontario, similar forest fires have wrought destruction in north-

ern Michigan, estimated at \$5,000,000, not to speak of the loss of life. Surely legislation and education together are equal to the problem of checking this ruinous waste.



## HISTORY OF RECIPROCITY.

(Continued from last issue.)

If an approach to free trade is the object aimed at in a reciprocity treaty, is it not logical to move in this direction by a reduction of the tariff, or its entire removal, for the whole world? In the case of Canada and the United States, for example, we find that for nearly a hundred years the tariff of the latter country has been higher than this country by a large percentage, and, therefore, if free trade is sought, the more complete the reciprocity, the more backward the step would be if Canada yoked herself into a system whose tariff is from two to five times as restrictive as her own. If free trade is good as between Canada and the United States, it is still better as between Canada and the whole world. This reduces commercial union with the United States to an absurdity, as a move towards free trade.

A reciprocity treaty, being an attempt to fix a landmark in a mid-ocean of change, is not only bound to tend to an unstable equilibrium, as between the two prime parties to the contract, but each new treaty negotiated with other nations must end in a greater or less breach of the terms and advantages already pledged by the previous bargains. It may not be a conscious breach of faith, but every fresh contract must necessarily qualify the preferences given

to the others, since the total of a country's productive powers, and consequently the total of its trade, cannot be multiplied by ten because it makes ten treaties. Its total trade is limited to the productive capacity of its individual workers. Canada has had an example of this in the commercial treaty with France. That country, for certain equivalent privileges, bought what it thought would be a special market for its silks, wines, etc., but under the favored nation treaties the chief advantage has been reaped by Switzerland and Italy, whose silks and other goods proved to be more adapted to the Canadian demand. It does not lessen the force of the argument to explain that the favored nation treaties, and not a specific reciprocity treaty with Italy and Switzerland, deprived France of the benefits she expected to get. The favored nation clause is only an automatically operating reciprocity effect.

A study of the economic history of nations shows a high rate of mortality among reciprocity treaties. They do not endure because they are founded on a fallacy. "In the United States," says the authority previously quoted, "reciprocity has been a failure, so far as tariff reform through that means is concerned. . . . Manifestly, there is no difference, so far as the consumer is concerned, between such a policy (reciprocity) and a reduction of the tariff by law. . . . Of the question whether it is right to barter away one man's protection in order to gain a trade opening for another man it is not necessary to speak. The usual argument states that we barter only that protection which is no longer needed. To



such a statement it is natural to reply that if the protection is no longer needed it should be withdrawn in the interest of the consumers. . . . If, therefore, the ordinary man analyzes the situation to consider his own interest as a consumer he is likely to become a tariff revisionist rather than a reciprocity advocate." The authors just quoted consider the reciprocity treaties hitherto made by the United States to have been failures, and they conclude: "In short, if we should ever approach the stage of development in tariff matters where reciprocity could be had, we should not need it."

The old reciprocity treaty of 1854-66—negotiated at a time when means of transport were few and their cost very high—served a good purpose in its day. It tided Canada over its period of depression and helped prepare its transportation systems for confederation, and it gave the industries of the United States the only large opening available, while it also assisted the development of the American West. But since then the outlook of both nations has materially changed. The means of transport have enormously developed and become less costly than in 1854, and the time consumed in delivering goods to the ends of the earth is being continually shortened, so that every continent is coming within reach of the exporter. The complex demands of modern commerce call for direct connections with every nation rather than for a trunk line to one. To speak, therefore, of one country only as affording a "natural market" is to fail to understand Canada's coming relationship to the nations. The natural market for a bushel of Canadian wheat, a bar-

rel of Canadian flour, or a ton of Canadian asbestos is anywhere in the world where it can be sold to best advantage, and Japan or Australia may be nearer, because better, than five miles across a boundary line. Geographical hindrances to trade count for less and less as these distances are reduced by rapid and cheap transit.

The United States is at last realizing that it cannot continue to absorb everything and give out nothing in return. In order to extend its foreign trade in manufactured goods it must produce cheaper, and to do so it must have cheaper raw materials. It happens that Canada has a number of these raw materials in more or less abundance, and a reciprocity treaty at the expense of other domestic interests of the United States is very attractive to such manufacturers. But if industrial development is all in all to a nation, then this problem has two sides. Canadian manufacturers are also looking for development in foreign trade, and, if supplies of these materials are essential to United States manufacturers in extending their foreign trade, they will also become essential to the Canadian export trade, and it soon becomes a problem whether the country should not look to the wide world for its industrial development rather than to sink into dependence upon the trade of a next-door neighbor with whom, in any case, a large trade has always been done, with and without treaties. And if the argument advanced on behalf of the farmers that "two markets are better than one," be valid, then it also follows that twenty markets are better than two, as applied to the products of both farm and factory.

(Continued in next issue.)

The Dryden Timber and Power Co. will erect a thirty-ton chemical pulp mill at Dryden, Ont. Construction on the building has been stated by excavation of the foundations. The interests of the old company, the Gordon Pulp and Paper Co., have been transferred to the new corporation, of which Mr. Bonfield is vice-president and managing director, and J. B. Beveridge manager-in-charge. The new mill will be a sulphate of soda mill for Kraft pulp. Mr. Beveridge, who will be manager of the mill on completion next year, is the son of James Beveridge, of the New Brunswick Pulp and Paper Co., and was, until recently, general manager of the Roanoke Rapids Paper Manufacturing Co., of North Carolina.

Mr. Campion, of the Belgo-Canadian Pulp and Paper Co., Shawinigan Falls, Ont., has returned from a trip to the Old Country.

### HATS OFF TO GERMANY.

We have had occasion to say complimentary things about the special numbers of trade journals issued in the United States and Great Britain, but we must now take off our hats to the German paper trade journal "Der Papier-Fabrikant," whose Holiday and Foreign number, issued in June, makes a volume in itself. There is a great variety of information, both in the literary and advertising contents of the 290 pages which make up this issue, and many of the articles have an international character by being printed in English and French, as well as in German. There are two folding plates of plans of paper mills, and many half-tone and colored illustrations of magnified fibres, diagrams and other cuts showing technical processes.



### UNITED STATES IMPORTS AND EXPORTS OF PAPER.

Trade returns compiled at Washington for the eleven months ending May, show that the United States exported news print to the amount of 90,413,864 lbs., valued at \$2,221,583. As news print was not separately classified in previous years there is no means of comparing these exports, but the total exports of printing and "other" papers for the past

eleven months were valued at \$3,345,567, compared with \$2,536,754 for the like period of 1910 and \$1,973,302 for 1909. Books, maps, engravings, writing paper and envelopes exported also showed a substantial increase in these periods. These exports, however, were over-balanced by the increase of imports to the United States in these lines, which were as follows:—

#### Imports Eleven Months.

	1909.	1910.	1911.
Books, maps, engravings, etc., dutiable and free .....	\$5,121,660	\$5,314,560	\$5,634,660
Printing papers (including news print) ....	\$15,009	1,716,796	2,265,686
Total paper and manufactures of...	15,288,235	15,801,615	17,168,119
Wood pulp, all kinds .....	7,869,927	10,747,387	12,702,634
Pulpwood .....	3,698,766	5,481,852	4,895,860

Of the imports of pulpwood all would come from Canada and Newfoundland, and of the printing papers the following came from Canada: 1909, \$581,149;

1910, \$1,438,096; 1911, \$1,805,843.

Of the imports of pulp Canada's share is shown in the following figures for the eleven months of the three years:

Imports to United States—Wood Pulp.

	Eleven Months Ending May.			
	1900.		1911.	
	Pounds.	Values.	Pounds.	Values.
Mechanically gr'd lbs., free .....			137,514,005	\$1,060,710
Mechanically gr'd lbs., dut. ....			149,895,471	1,237,236
Chemical—				
Unbleached .....	243,373,334	4,061,405	343,221,947	5,336,572
Bleached .....	76,481,968	1,884,889	140,024,935	3,112,860
Total .....	562,031,163	\$7,860,927	771,256,058	\$10,747,387
Imported from—				
Germany .....	88,886,399	\$1,642,604	148,275,122	\$2,594,507
Norway .....	70,414,053	1,437,419	111,154,372	2,118,557
Sweden .....	75,881,824	1,189,461	95,798,207	1,470,126
Canada .....	303,144,413	3,114,658	374,342,808	3,874,189
Other countries .....	24,604,474	485,695	41,685,549	690,008

NEW DEVELOPMENT IN THE EXPORT PULP TRADE.

W. P. Ryrie, of the Ryrie Paper Co., has recently returned from a protracted trip in Europe, and while there joined the board of Messrs. Becker & Co., Limited, the largest pulp dealers in England. Mr. Ryrie is now busily engaged in arranging for the incorporation of a firm to be designated as "Becker & Company of America, Limited," which organization will carry on the United States and Canadian end of the business. The trade in the United States is of a large and growing character, so that, with the benefit of the European organization in Scandinavia, Germany and England, there should be a great future for this enterprising firm.

In his travels Mr. Ryrie visited many of the largest up-to-date chemical pulp mills, and found rather an optimistic feeling in the minds of many of the pulp manufacturers. Many large contracts have recently been placed, in some instances certain orders having been booked three or four years ahead at prices which British and other paper makers seem to consider satisfactory, and which also appeal to the pulp makers as being advantageous. This procedure is resorted to in limited quantities only, the sellers evidently deeming it wise to dispose of part of their outputs at what they consider a fair price and taking a chance of market conditions later on for the sale of the bulk of the product.

It has been thought by many that the large increase in the number of pulp mills in Scandinavia would make it difficult for the newcomers to find a market for their product, but the advantages derived from most up-to-date machinery in the newest mills built, literally on tide water, are so real that the cost of production is brought low enough to place new mills in a position to sell at prices which will command the attention of buyers. Most of these mills have been able to buy the properties of lumbering firms with large timber reserva-

tions, and the wood is brought down by water to the mill yards, thus reducing its cost to a minimum by cutting off the railway freights on the pulpwood, as well as carriage of the pulp by rail to tide water. It will be seen that a very distinct advantage is enjoyed under these ideal conditions.

Mr. Ryrie explains an interesting feature of the European situation in stating that many of the older mills, particularly in Norway, are now securing much of their wood from Russia, which necessarily means largely increased cost in most instances. As a matter of fact, some sales of chemical pulps have recently been made from Swedish mills to Norwegian paper makers, particularly in the southern districts. Taking it all in all, the situation is exceedingly interesting, and it is difficult to see what the eventual issue will be.

Mechanical pulp has for many months been selling at very low prices, but the action of the mill-owners in closing down for one day in the week, coupled with a better demand, has recently put prices on a much firmer basis. In addition to these points there is, at the present moment, serious prospect of a lock-out in the ground wood mills, so it is difficult to foresee what may happen in the near future.

Mr. Ryrie, as managing director of Becker & Co. of America, Limited, will maintain headquarters in Toronto, and have a competent staff at each of the Atlantic and Gulf ports, thus giving excellent facilities for the carrying on of business with the United States mills.



Lack of water hampers the mills along the Cornwall Canal. A deputation of manufacturers interested, among them being Mr. Barber, of the Toronto Paper Manufacturing Co., waited on the Minister of Railways and Canals a few days ago, asking the government to increase the flow.

## REPORT ON TIMBER ALONG HUDSON BAY ROUTE.

J. R. Dickson, B.S.A., B.S.F., Assistant Inspector of Forest Reserves, head of a party sent out in the summer of 1910 by the Forestry Branch of the Department of the Interior to estimate the timber along the proposed route of the Hudson Bay Railway has made his report. The party started at The Pas and explored the country around Mitishto Lake, the Mitishto River, the Grass River system (including Wekusko Lake and other lake expansions), Pakwa (or Pakwahigan) Lake, Setting and Split Lakes, and the Nelson River system, including Cross, Sipiwesk, Wintering and Landing Lakes. On their return journey the party came by way of the Minago (or Pine) River. The total distance covered, following the route of the proposed line, was about 235 miles.

The total number of ties available in the district traversed is estimated at 360,000; these, at 3,000 to the mile, would be sufficient for about 120 miles of road. The saw-timber totals about nine and a half million feet, board measure. Dead tamarack and the largest of the close-grained black spruce could be used for pile timber. There is an immense supply of fuelwood and pulpwood, but a good deal of the young timber is too small, as yet, even for pulpwood.

Spruce is practically the only timber large enough for ties and saw-timber. Poplar, birch and jack pine are found in quantity, but are "invariably too short, spindly, limby and crooked for any use save fuel and pulpwood." Scarcely any live tamarack is found; the party did not meet with two hundred green tamarack over ten inches in diameter during the whole of the summer.

The chief reason for the comparatively small supply of timber in the district is the fact that fires have so often run over it. The greatest of these occurred, respectively, eighty and forty years ago, and few parts of the region



explored escaped these. The attacks of insects have also caused much loss of timber in the region. Bark beetles are the greatest offenders. They have killed nearly all the tamarack, and are now at work on the larger spruce. They attack live trees, which, having been weakened or killed, are thrown by the wind. A bad tangle of trunks, branches and other debris results, and finally a lightning flash sets fire to it, and the fire may run over miles of country.

The prevention of fire is a difficult problem. The area is practically uninhabited and of such vast extent that the chances for stopping a fire once started are not very good.

In this region white spruce reaches a diameter of eight to twelve inches in 100 years, poplar eight to ten inches, and black spruce four to five inches. Jack pine will not average six inches in diameter.

The author's conclusions in regard to the timber are not very optimistic. "There is probably enough timber available to build the rough construction work of the Hudson Bay Railway" is as far as he permits himself to go.



#### NEW SULPHATE PROCESS.

A writer in the "Wochenblatt für Papier-fabrikation" tells of a new process in the sulphate and soda pulp industry whereby the offensive smell can be avoided and valuable by-products saved at the same time.

The methods were invented by Dr. Erik Ludwig Rinman, of Harnas, in conjunction with Herr E. S. Sandberg and O. K. Sunblad, of Skutskar, and Herr N. A. Langlet, of Gothenburg, all engineers. In the new process there is less loss of alkali, the alkali not being used in the form of sulphate.

By means of dry distillation there are obtained acetic acid, formic acid, and as a final product, in a carbonized condition, the lignine contained in the wood. Acetic acid, as known, is already very

extensively used, but formic acid to only a relatively limited extent. As lignine is found in pulp wood to the extent of as much as 20 per cent. of the dry weight, the quantity to be recovered would be relatively large. In its carbonized form lignine is a good raw material for carbon electrodes, and is thereby certain to meet with a large demand for technical purposes. A plant is being erected for working up the lignine received in a large carbon electrode factory. If these plans are realized, one furnace will, it is stated, make 6,000 tons of carbon electrodes a year with a value of more than \$140,000.

A company has been incorporated at Fahm, Sweden, under the name of the "Aktiebolaget Cellulose" with a capital of \$130,000 to utilize the new sulphate process.



#### CANADIAN MARKETS.

Toronto, 17th July, 1911.

The pulp-wood market is not as active as in past seasons, although rossed wood is bringing from \$12.50 to \$14, delivered in the States at interior points. In Quebec \$6 to \$8 is being paid for peeled wood delivered at stations. There is plenty of wood still lying at stations on the south shore of the St. Lawrence.

No change is apparent in ground wood pulp, which is quoted at \$16 to \$20, delivered. Mills are all busy, but little fresh business is being transacted with United States mills, owing to tariff unsettlement there.

The Canadian market for bleached sulphite runs from \$2.35 to \$2.40.

Rags are quoted here at \$1.50 to \$1.55. Mixed paper was \$8.50, but is now \$9.50; white blanks is \$1.25, and folded news from \$10.50. All these prices are delivered. Bagging is bringing the good price of 95 cents, delivered.

(Continued on page 276, and advt.  
page 74).

## LATE NEWS.

The International Paper Co. is getting a considerable amount of pulp-wood from Nova Scotia, two cargoes being brought into Rumford, Me., from Liverpool, N.S.

\* \* \*

The Strathcona Paper Co. has taken over the wrapping paper mill of W. J. Finlay at Strathcona, Ont., who recently made an assignment, and the plant is again in operation.

\* \* \*

Miss Elsie Riordon, daughter of Mr. Riordon, president of the Riordon Paper Mills, was married on the 4th inst. in London, Eng., to Sir Hamilton Gould Adams, late Governor of Orange River Colony.

\* \* \*

Three new boilers of 125 horse-power each are being installed at the Montrose Paper Co.'s mill at Thorold. These replace the old boiler, and with the new 150 horse-power turbine will give power for the new 140-in. paper machine to be installed next year.

\* \* \*

Following the fire at Calumet village, Que., in June, another disastrous fire broke out a few days ago in a saw mill owned by the Riordon Paper Mills, Limited. The saw mills and a large stock of lumber, as well as other property, was destroyed. The loss was over \$200,000, but is covered by insurance. The fire was thought to have originated in an overheated bandsaw. The company's pulp mills, which are situated across the river at Hawkesbury, were not endangered by the fire.

\* \* \*

We regret to learn of the sudden death of E. G. Joly de Lotbiniere, the widely-known and popular member of the Canadian Forestry Association. Mr. Joly, a son of the late Sir Henry Joly de Lotbiniere, was a close student of all phases of the forestry problem, and

contributed much valuable information on the subject to the various associations and the government, and both he and his father carried out many experiments in reforestation tracts of land on the large seigneurie which bears the family name in Quebec. Mr. Joly was a high type of what might be called the Canadian country gentleman.

\* \* \*



The above half-tone is from a photo of John R. Barber and his son, John R. Barber. Mr. Barber, Sen., is 70 years old, and Master Barber is seven. Mr. Barber is the oldest paper manufacturer in Canada in active business. No man in the industry is held in greater esteem and none is more thoroughly Canadian.

\* \* \*

The recent tenders called for by the Ontario Government for pulp wood concessions in the Abitibi and Rainy River districts, not having been thought satisfactory, the Department of Crown Lands may consider individual offers. Conditions will be made known on application.

**THOMSON PAPER CO.**

The Thomson Paper Co., of Newburgh, Ont., manufacturers of wrapping paper, have made an assignment to Marshall C. Bogart, of Napanee. Regarding the affairs of the company, Mr. Bogart, the liquidator, says: "The Thomson Paper Co. assigned to me on the 17th of June last. Their liabilities amounted to about \$21,000. The assets will cover the liabilities, provided we are able to realize the amount we anticipate on the mill, plant and water power. This water power is very valuable, being one of the best along the Napanee River, and can be made to carry between forty and fifty foot head, and most valuable for the development of electrical power."

**INTERESTING TIMBER LIMIT CASE.**

A case just tried in the British Columbia Court of Appeals is of interest to all pulp and paper manufacturers who own or are concerned in acquiring timber lands. The case arose out of the sale of stock of the Fraser River Saw Mills, Limited, now the Canadian Western Lumber Company, to Edward F. Swift, A. D. McRae, A. D. Davidson and Senator Jansen by Lester W. David, of the Lester W. David Co., Limited, of Vancouver and Seattle, and the litigation ensuing therefrom through their refusal to pay for the stock, alleging a shortage of timber. The contract having been made in the United States, Mr. David sued them in the United States Court in two separate cases, one being for the amount due him on stock deposited in the Bank of Montreal, New Westminster, B.C., which they failed to pay for, and the second case for stock deposited in the National Bank of Commerce of Seattle. He secured a judgment in both cases. They then sued him in the British Columbia Court, alleging a shortage of timber, and secured a judgment of \$171,500. They

based their case on their own definition of "timber," and the trial judge awarded them the judgment, defining "timber" as logs that could be put in the water and sold on the market to-day at a profit. Mr. David guaranteed a total quantity of timber on all of the land of one billion thirty million feet. There was about 56,000 acres included in the guarantee. The word "timber" was not defined in any way.

In the decision just rendered by the three judges in the British Columbia Court of Appeals they take up the definition of "timber." Chief Justice MacDonald goes into the case quite thoroughly, and publication of his opinion would, no doubt, give information to the public on the definition of the word timber, showing that it is advisable in making contracts guaranteeing the quantity of timber, or even in selling timber lands, to define the word "timber" so that it cannot be misconstrued.

The following are points from the judgment:—

The defendant agreed to guarantee that the "timber" in question "shall at least run equal in quantity to the number of feet shown in the attached statement" and that "in the event of all the tracts from a cruising or other verification failing to reach the quantity represented in the attached statement" the defendant would pay for the shortage. The plaintiffs sued on this guarantee, and attempted to prove the shortage by the evidence of a number of timber cruisers, as they are called in the trade, who had estimated the timber on the various tracts. The learned trial judge accepted these estimates as substantially correct, found a shortage of upwards of 277,000,000 feet, and gave judgment for \$171,500. The defendant's witnesses estimated the timber on these tracts as upwards of 500,000,000 feet in excess of the quantity guaranteed. The learned judge has stated that in his opinion the witnesses on both sides were honestly endeavoring to give proper estimates:

The enormous discrepancy between them is, I believe, to be accounted for by their different interpretation of the term "timber" as used in the contract. If I come to the conclusion that the plaintiffs' witnesses made their estimate on the right understanding of that term, then I think the judgment below ought to be sustained; but if, on the contrary, these witnesses have excluded from their estimates timber which would probably fall within said term on a right construction thereof, then the plaintiffs' case fails. The onus was upon the plaintiffs to prove a definite shortage, as definite as could reasonably be proven by the only means which, I think, were in contemplation of the parties, namely, by estimates to be made of the timber in the forests, standing or down, by timber cruisers. The quantity, reduced to board measure, was to be ascertained in that way, and not by actual measurement of each tree. The only question, then, is, did the plaintiffs' cruisers include all the trees or wood they should have included in their estimates? If they did not, then, in my opinion, the plaintiffs must fail, as in that case there is no evidence of shortage, and the plaintiffs having rested on their interpretation of the agreement, or on that of their witnesses, must take the consequences.

The plaintiffs, who had professional assistance in the drawing up of the written agreement, while the defendant had none, and who neglected to define what the term timber was meant to include, now contend, if I have not misunderstood Mr. David in his argument before us, that the only timber to be included in the estimates was such as under conditions which existed at the date of the contract could be manufactured at a mill into merchantable lumber, saleable at a profit, and, if I do not misapprehend the reasoning of the learned trial judge, he has adopted practically the same interpretation. The crucial tests applied by him were "a fair cutting estimate," and cost of logging and market price under present conditions.

The plaintiffs' cruisers proceeded, each in his own way, to estimate the timber on the particular tract or tracts to which he was assigned, and followed his own bent as to what ought not to be included within the term "timber." The result is illustrated by comparing the evidence of several of the plaintiffs' cruisers. Rankin included in his estimate only such timber as could be put on the market, which I take to mean in the shape of saw-logs and under present conditions, and excluded what he considered inaccessible at present prices. Easton made deductions for timber which he considered defective in quality; Faulkner excluded trees fit for the manufacture of telephone and telegraph poles and piling. This witness made a preliminary cruise before litigation commenced, and found in one section 6,600,000 feet, but in his final cruise for the purpose of this litigation, 3,150,000 feet only. It is only fair to say that a preliminary cruise is not intended to be as accurate as a final one, but still the discrepancy is out of all reason. This cruiser in another section found 800,000 feet, while McRae, another of the plaintiffs' cruisers, found in the same section 1,520,000 feet. McRae deducts a percentage for what he considers inaccessible timber. Hooker estimates only what he thinks is fit to cut which, I take it, means for saw-logs. Cilkey makes deductions for breakage and other non-merchantable timber. The deduction for breakage was because the witness thought that in felling the trees a considerable number of them would break, owing to the roughness of the ground, as if the timber was to be delivered in logs at the mill and was not to be estimated as standing upon the land. Ramer estimated on the basis of what he thought would be taken off the land at the present time. Sheehan, what a man could log and get back his money for. This witness also makes deductions for breakage. McLarty took all that could be profitably logged at the present time; and Myers, who was a

(Continued on page 273).



**PINE, OR PAPER YARN, FIBRE.****A New Fibre for Textile Manufacturing.**

(Continued from last issue.)

**Present Methods.**

Average production per one spinning machine of 120 spindles, about 430 pounds.

Machinery.—167 spinning machines, 70 cutting machines.

Hands.—As these spinning machines are about  $16\frac{1}{2}$  yards long, holding 60 spindles on each side, at least two hands are wanted on each side,  $167 \times 4$ ..... 668

70 cutting machines, each one hand 70

For each cutting machine two boys are wanted for roll dividing,  $70 \times 2$  140

For carrying divided strip rolls to spinning machines, say, only one boy is required for two machines 80

Boys for helping to change strip rolls in the spinning department 10 to 12 times a day, say..... 160

Hands wanted ..... 1,118

**Improved Methods.**

Average production per one spinning machine, 100 spindles, about 356 pounds.

Machinery. — 200 spinning machines, 70 cutting, dividing, and rolling-to-bobbins machines.

Hands.—As these spinning machines are only about 9 yards long, holding 50 spindles each side, one hand for each side is enough,  $200 \times 2$  ..... 400

Two hands for each cutting, dividing, and rolling-to-bobbins machine are required,  $70 \times 2$ ..... 140

As one of my strip rolls holds 10 to 12 times as much as other rolls referred to, one boy for five machines is sufficient,  $40 \times 1$ ..... 40

Boys for helping to change strip rolls in the spinning department.

I only require one boy for five machines, so I only need to change once a day instead of 10 to 12 times,  $40 \times 1$  ..... 40

620

Old methods .... 1,118 hands.

My methods ..... 620 "

Saving ..... 498 "

say, at 2s. 6d. per day, £62 5s., or per year, a saving in wages of £18,675.

Waste.—At a low estimate this comes to 3 per cent. according to old methods.....300 tons

As I am spinning almost every inch, there is no waste, but

calling it 1 per cent..100 tons

Saving £10 per ton..200 tons.. £2,000

Total saving ..... £20,675

or about 4 per cent. on £500,000.

Calculating the average wages at 2s. 6d. per day per hand:—

Old methods per year, 1,118 hands ..... £41,925

My methods per year, 620 hands ..... 23,250

or about £2 6s. 8d. per ton, against £4 4s. per ton for wages.

My first machines are now ready, and a demonstration will be made at 28B, Bartholomew Close, London, E.C., in a few days' time, when those interested will be able to study the same. You will also be able to see all kinds of samples of yarn and manufactured articles from paper yarn.

**Raw Material.**

As we have machinery suitable for a large industry, one, of course, asks, Where is the raw material, in what quantity, and at what prices is it to be obtained? In reply to this, there is raw material in unlimited quantities in the shape of pine trees, which grow and are harvested independent of climatic changes. The paper from these can be

made in unlimited quantities. Some figures taken from the United States Department of Agriculture relative to the forest resources of the world show that in Asiatic Russia, Europe, Canada, and the United States of America there are 2,400,000,000 acres of forest. Take it that only one-tenth of this is suitable for my purpose, and approximately 60,000 acres of good forest are required for a continual supply for all time with replanting to produce 10,000 tons of pulp per year, there is still enough wood available for 40 million tons of pulp in a year; an insignificant portion of this, call it 100,000 tons, for making paper yarn would in no case influence the supply of material for pulp making, but would favorably influence the textile industry if such a quantity of raw material could be put on the market.

### Paper Yarn.

Any kind of paper made from chemical pulp can be successfully spun on the machine I use, but the appearance and strength of the yarn will differ considerably, depending on the quality of the paper. Of the different kinds of paper which I have hitherto tried, Swedish Kraft has proved to be the best, and from this paper a very strong yarn is obtained. Pure sulphite paper not mixed with mechanical pulp also produces a serviceable yarn, which is quite good for many purposes. For specially fine yarn, tissue paper is the best. At present there is no paper specially made for spinning purposes, and all my trials have been made with common wrapping paper. Notwithstanding this, I have obtained exceedingly good results, and, without doubt, the results will be still better when specially made paper can be used for spinning.

Paper intended for spinning should be about 19 in. wide, and in rolls; these are placed in the cutting machines, which cut the entire width in one operation in strips from 2-12 in. to  $\frac{1}{2}$  in., or any required width. The strips thus ob-

tanied are simultaneously carried over to the dividing and rolling-to-bobbin machine, and are cut at a speed of about 44 yards per minute. They are separated and rolled on the bobbins in lengths of about 3,000 to 5,000 yards on each bobbin. These bobbins are then moved on to the spinning machines, with one bobbin for each spindle, and the paper strip from each bobbin is carried to a damping roller, and directly after leaving this roller is spun into yarn on a ring spindle, either upon a wooden bobbin or a conical-shaped paper tube. The spinning production averages about 356 pounds per 100 spindles in ten hours. Paper-spinning is very simple, and the spinning and preparing, as well as the weaving operations, are clean; there is no fibrous dust in the mill. Paper yarn does not require dressing for warp, but can be transferred to the warp beam as it is, owing to its cleanliness and evenness of surface.

This paper yarn is specially suitable as a substitute for yarns hitherto used; we have made packing twine and cords, and the samples I can show of these made from Swedish Kraft paper prove that there will be a very large market for them. I have also samples of saddlebags for furniture, and one of the leading Swedish furniture makers has tested them, and informs me they are superior to those that are used made from hemp, and are, of course, much cheaper than hempen ones. I have also lately got samples ready of spindle banding and there is no doubt that these will do very well, and the cotton used for this purpose may be saved for other fabrics. Of course, carpets of all paper yarn are already in great demand, and require thousands of tons of yarn for the world's market, and the same applies to wall coverings. In carpet backs the paper yarn is superior to jute yarn, and not only in Germany and Austria has it been used, but I know also a Swedish mill which buys every month about 10,000 pounds of paper yarn from Germany. In such linen fabrics as pad-

dings, waterproof canvas, scenery cloth, etc., the paper yarn can be used as weft. For wool-packing purposes a cloth of all paper yarn is very suitable, because of its clean surface. I think I am right in saying that such packing cloth is the very thing needed by those who deal in wool; everybody knows the difficulties experienced owing to jute and other fibres getting mixed with the wool.

Of course, there are many articles to be made of a union of paper yarn and cotton, such as upholstery cloth, mattress cloth, cloth for workpeople's blouses and aprons, etc. For all sorts of trimmings, and tapes or ribbons, for curtains and furniture, I have used paper yarn overspun with silk, which has proved very successful. An enormous trade in paper yarn is certain as a substitute for jute; for instance, in floor-cloth for linoleum, bags and sacks of all-paper yarn, and with paper yarn warp and jute weft.

A very advantageous thing with this paper yarn is that if it is woven into mixed cloth or made up into ropes and packing twine, it is not influenced or damaged by hot or cold water. For instance, I have had a corn bag made entirely from paper yarn and filled with 150 pounds of oats placed in the open air, where it was exposed alternately to rain, snow, and sunshine without being damaged in any shape or form. I have had a piece of paper yarn tarpaulin alternately boiled, air-dried, immersed in cold water, and ironed without taking damage; these tests extended over one month.

#### Cost.

The manufacturing or producing cost is dependent upon how the manufacture is established. The first undertaking must necessarily be headed by experienced textile men of high reputation and the business founded on a sound basis. My scheme for the first undertaking is based upon acquiring a forest of about 30,000 acres, with a large water-power of about 5,000 horse-power. From such an estate a yearly production of about

5,000 tons of paper can be produced for all time to come, and if this estate is in a favorable situation the best wood can be bought cheaply from adjacent plantations, which would enable a company to get enough wood for 40,000 to 50,000 tons of paper per year for the future.

If the undertaking be established on the lines I have mentioned, and it commences spinning about 5,000 tons per year and in eight different widths varying from 2-12 in. to  $\frac{1}{2}$  in., prices in natural, white, and brown color will be about, respectively, 1 $\frac{1}{2}$ s, 1s, 1 $\frac{1}{2}$ s, 1 $\frac{1}{2}$ s, 1 $\frac{1}{2}$ s, 1 $\frac{1}{4}$ s, 2s, 2 $\frac{1}{2}$ s pence per pound. From the German paper spinning mills I had quotations in 1909, the cheapest price being 3d. up to 4 $\frac{3}{4}$ d. per pound in natural, white, or brown, and for polished or glazed yarns 5 $\frac{1}{4}$ d. per pound.



#### SPECKS AND DISCOLORATIONS IN PAPER.

(Continued from last issue.)

Grease specks are very similar to resin stains; but are usually more sharply outlined, and unremovable by cold alcohol. The grease dissolves in ether or benzine, and the stain loses its transparency; but the presence of copper or iron generally makes itself seen after the grease has been removed. The stains generally come from the lubricators of the hollander rolls or from other machinery.

Scum specks are mostly small depressions, which are sometimes surrounded by a raised ring. In smooth paper this ring is often somewhat more transparent than the enclosed space, and in rare cases has a different color from the rest of the paper. As these stains are due to frothing during sizing, the ring, which is caused by the bursting of a bubble, sometimes contains resin. There are, however, a number of stains showing no specially characteristic features, and are called scum marks. Whether they are or are not due to frothing is very rarely ascertainable by

examination of the finished paper. Sand stains include those due to grains of sand, fragments of mica, and similar bodies. They also include marks, which, although they contain no foreign bodies, are caused by mineral particles embedded in the rollers. In this case the marks are repeated at regular intervals.

It is at present fashionable for certain papers, especially letter papers, to have a rough edge. Hence, many attempts have been made to split the web up into lengths while still on the wires, and in such a way that the line of division is marked by rough edges on both sides. This division can be effected by blasts of air, water, or steam, or by mechanical means. Among the methods belonging to the latter category we have the plan of closing the meshes of the wires in the proper directions, so that the pulp cannot remain there, and passes over these places. Another method, which, however, has the drawback that it can only be applied for dividing the web parallel to the length of the wires, is to fix strips of cloth, felt, or india-rubber along the whole length of the wires at suitable distances apart. It must not be forgotten that once the paper has passed the couch rolls it is impossible, except at considerable expense, to get the rough edge for any but the most expensive papers; the division must take place on the wires. There are two reasons for this. One is that in its later stages of development the web is more compact and more difficult to cut up; the other is that there is naturally more waste of fibre.

As regards the methods for dividing the web upon the wires, which depend on the use of steam, air, or water, the greatest care must be taken that the jets are true in line, and exactly where they are wanted. The edge has to be straight, on the whole, and just ragged enough but not too ragged.

Steam is the dearest of the three agents, but at the same time the most efficient, if its action is kept strictly within the area of the paper web, where it is required. An objection to steam

for this purpose is the damp atmosphere produced, and perfect ventilation is essential. The clouds caused by the condensation of the steam often make it impossible to watch the action of the machine, unless they are removed as fast as they are produced. Another very important thing, whether air or steam is used, is to prevent the pulp from reuniting on the couch roll side of the blast. The best safeguard against this is to have as much water in the pulp as possible. If there is still danger, the row of blasts must be lengthened. With water jets this danger is absent; but the supply of separating water must, of course, not exceed the capacity of the suction boxes. It is also evident that whatever agent—steam, air, or water—is employed, the force of the jets must never exceed what is absolutely necessary. Excess not only means waste of steam, etc., but undue disturbance of the paper web. It will also be evident to every practical man that the strength of the blast from the jets must in all cases be regulated according to the nature of the pulp on the wires. As just stated, the working principle is that the force employed must be enough to tear the web; but it must not be more than enough. Many ingenious mechanical contrivances have been invented to use various blasts in the most efficient and in the most economical manner.—Paper Maker.



The St. Croix Paper Co., Limited, of Hartville, N.S., have purchased the Eastern Pulpwood Co., of Calais, Me., and will continue the purchase of all kinds of pulpwood on an enlarged scale.

The E. W. Gillet Co., who have recently sold their factories in Toronto to the W. R. Brock Co., and who will erect a large, new plant, intend to manufacture paper boxes in addition to their other well-known specialties, Magic baking powder, Royal yeast cakes, etc.



# SENATE COMMITTEE ON RECIPROCIDITY.

(Continued from last issue.)

Mr. Norris—I saw Mr. Pepper from time to time about the duties on paper and the possibilities with Canada, as I am quite sure Mr. Hastings and Mr. Lyman had been doing also.

Senator Smoot—Is it your testimony now that the bill that your association approved of allowed Canadian paper to come into this country free and did not provide for the paper made in the United States to enter into Canada free?

Mr. Norris—Senator, will you permit me to make my statement with respect to our dependence upon Canada for the raw material of paper-making, and then, I think, I will have answered you adequately and covered every point of the inquiry.

Senator Smoot—No; that is not my question; that is not what I wanted to know. You have just read here a resolution passed by your association in favor of this bill, and also specifically stating, "Without amendment." Now, I ask you whether your association knew when it passed that resolution whether the bill permitted paper and wood pulp to come into the United States free from Canada and did not permit paper and wood pulp to go from the United States into Canada free?

Mr. Norris—I deny the accuracy of that statement. Cheap paper and the retention of the print-paper industry in the United States can be secured by the adoption of the paper clause of the reciprocity treaty, and it seems from present indications that those results cannot be obtained in any other way. The Canadian Provinces which control the raw material of paper manufacture are trying to force American paper mills to move to the other side of the boundary line. They have prohibited the exportation of pulp-wood from provincial land; they believe they can starve out the American paper-makers, whose domestic sup-

plies are nearly exhausted. The Dominion Government of Canada has not adopted this policy of starvation, but the Dominion Government is as powerless to stop the provinces from working out their policies of prohibition as the American Government is with respect to the Pacific Coast States in the matter of Japanese exclusion, or the State of Minnesota in the regulation of its swamp lands.

In the year 1909 the American paper-makers had a chance to consummate an arrangement with Canada whereby the supply of wood from the Province of Quebec would be continued indefinitely. The House of Representatives adopted this programme, which the Mann committee had formulated because the provincial authorities had said that if they were expected to allow their wood to go to the United States without restriction, then Canadian paper made from that same wood should not be subjected to a heavy tariff. That was a reasonable proposition, but the American Senate, at the instigation of ex-Senator Hale and of the extreme standpatters among the paper-makers upset that arrangement and undertook to bulldoze the Canadian Provinces by the imposition of retaliatory duties to let their pulp-wood come into the United States without restriction.

Senator Heyburn—Who was it undertook to bulldoze them?

Mr. Norris—The Senate or the members of the Senate.

Senator Heyburn—Undertook to bulldoze the Canadian Provinces?

Senator Bailey—Mr. Chairman, I object to a statement to the committee of that kind, and I shall object to this witness proceeding until that is eliminated.

Mr. Norris—I withdraw it.

Mr. Norris—Newspaper publishers who pay \$55,000,000 per annum for their print paper have taken a wide view of this Canadian situation. Naturally, they want to broaden their market, but they have opposed the effort of the Canadian Provinces to force the paper industry to Canada. If, however, American paper-

makers continue upon their present course of combinations and restriction of production and limitation of stocks on hand and increases of prices whereby they pass along the cost of all their blundering methods to the consumer to the extent of \$6,000,000 per annum, it is conceivable that patience will be exhausted, and that these consumers may ask that print paper be admitted free of duty without condition. It is certain that with the unlimited supply of pulp-wood in Canada and with the ample water powers of that country no paper trade combination can be formed there which could permanently mark up paper prices. An abnormal increase in paper quotations would put a premium upon the building of new plants, and would bring as it does upon all such pools, the inevitable penalty of an increase of production. Such an outcome is not possible in the United States paper trade because the available water powers have been taken up for other industrial purposes and the timber areas tributary to those water-powers have passed into the hands of large holders for speculative purposes.

An evidence of the increasing dependence of the paper trade of the United States upon outside sources for raw material is found in the purchase of wood pulps from abroad. During the fiscal year of 1909 the consumption of pulp-wood and pulps made abroad was equivalent to 1,211,208 cords. In the fiscal year of 1910 this consumption was 1,688,106 cords, an increase of 39 per cent. in one year. For nine months of 1911 the importation of pulps has almost doubled the importation of two years ago, all of which has been at the expense of the newspaper publisher, who is the consumer. The paper industry paid \$19,406,074 to foreigners in the calendar year 1910 for pulp-woods and pulps to keep American paper mills going. The consumers paid penalties of \$150,000 in retaliatory duty because there was an inadequate supply of free wood in Canada available for the needs

of this market. Nearly 40 per cent. of the wood and pulp which we now use as the raw material of cheap paper comes to us from abroad. What unbiased legislator, considering this pulp and paper proposition solely from the standpoint of supply and demand, can permit the present situation to continue, much less to aggravate it by promoting reprisals from those Provinces of Canada which are in position to dictate terms? The Canadians are keen; they are well aware of the strength of their position, and it is folly to mince words or to indulge in loose threats or to subject the consumers of paper to the disastrous consequences of such a trade war as the rejection of this paper clause would entail.

I also desire to submit a story of paper combinations and oppressions, giving a résumé of the various paper combinations, starting off with the consolidation of twenty-four mills into the International Paper Co. in January, 1898, and showing the creation of the attacks upon the boxboard pool, the fibre and manila pool, the excessive capitalization of the International Paper Co., speculation in woodlands, and the sulphite pool.



Mr. I. Hamilton Benn, one of the incorporators of the new pulp and paper company, "B. Grier, Limited," of Montreal, is a member of the pulp and timber trading firm of Price & Pierce, Limited, of London, who have recently established a branch office in New York

A recent issue of the "Inland Colonist," of Kitselas, B.C., appeared printed on brown wrapping paper with the editorial explanation that, "owing to the lack of newsprint in town, the paper is being printed on wrapping paper supplied by local tradesmen." The true Western spirit will not be downed.

## Pulp and News Print in the United States and Canada.

### Report of the U.S. Tariff Board on Costs of Production.

(Continued from last issue.)

By manufacturing labor is meant the labor which is applied directly to materials in process; it does not include labor expended in repair of machinery nor upkeep of plant. Process labor in pulp and paper mills has been made to include labor engaged in production of power, i.e., engineers, firemen, etc. This was made necessary because paper and pulp manufacturers do not keep their immediately productive labor so carefully distinct from nonproductive and contributory labor, as do manufacturers in some other lines. It was, however, always possible to separate repair labor from that more directly engaged in production. The extreme variation in the labor costs is due neither to difference in individual efficiency of labor nor to that in equipment, since the equipment of the grinding rooms is fairly similar in all mills under investigation. The difference is principally due to variations in available water power. A grinder built to operate under, say, 600 horsepower, and of a capacity of from 6 to 8 tons per day will turn out its full quota when water is plentiful and work is conducted under full pressure. As the water supply diminishes the productivity of the grinder rapidly falls off without allowing for any saving in the labor. The result is that the same amount of labor produces twice as much in one case as it will in another. The variation under the heading of other costs is likewise very wide. This item covers a large number of cost elements, such as repairs, general supplies, general works expense, office expense, etc., which will differ according to the age of the plant, the scale on which operations are conducted, etc.

Manufacturing labor cost averaged \$2.18 per ton for the entire tonnage reporting, but shows a range of from 98

cents for lowest to \$5.90 for highest. Other costs average \$2.18 per ton with a wide range between highest and lowest. The significance of the range in total cost and manufacturing labor cost is shown in Tables 5 and 6. Two plants produce 111,966.6 tons of pulp, or 15.4 per cent. of the tonnage reported, at an average total cost of \$9.90 per ton; 7 plants produce 14.8 per cent. of the total tonnage, at an average of \$13.48 per ton, that is to say, 37.1 per cent. of the total reporting tonnage, or 269,247.5 tons, are produced at a figure under \$14 per ton as a total cost. Sixteen establishments produce 27.2 per cent. of the tonnage at an average of \$15.18 per ton and between the ranges of \$14 and \$16. The largest tonnage in a single group of costs falls between \$16 and \$20, with an average of \$17.18 per ton; this group of 22 plants out of 53, produces 246,989.9 tons, or 34.1 per cent. of the total.

The manufacturing labor cost per ton of ground wood pulp ranges in the tables from 98 cents to \$5.90 per ton, 5.3 per cent. of the tonnage being produced in one mill at the 98-cent cost; while only three-tenths of 1 per cent. is produced at the highest figure. Both of these costs are therefore unusual in the industry. The table shows that the highest percentage of production falling into a single classified range of manufacturing labor costs falls in the \$1.50 and under \$2 group. Nearly 42 per cent. (41.8) of the total tonnage reporting comes between these figures, and is produced at an average of \$1.60 per ton, while the average manufacturing labor cost for all is \$2.18 per ton; 50.8 per cent. of the reported production carries a manufacturing labor cost of less than \$2 per ton: 18.6 per cent. carries an average cost of \$2.31; 20.2 per cent. an average cost of \$2.81, while 80.6 per cent. of the total is produced at a cost for manufacturing

labor ranging between \$1.50 as the lowest, and \$2.00 as the highest.

#### Cost of Production of Sulphite Pulp.

In the case of sulphite pulp there is likewise a wide range of cost, although not so great as in the case of ground wood. Here, too, the chief cause of variation in cost lies in the item of wood cost. The variation in the cost of wood alone is almost equal to that in the total cost of pulp, and therefore goes far to account for the latter. The causes are the same as in the case of ground pulp. It should also be borne in mind that the variations in cost of wood per ton of product are influenced by the skill with which the raw material is utilized. In the case of ground wood pulp our figures show considerable variation in the quantity of wood entering into a ton of product, showing the effect of variations in the amount of waste. Similar variations appear in the cost of wood for sulphite mills, as determined by the skill employed in cooking.

The great divergence in the cost of labor per ton of sulphite is due principally to the difference in the size of the digesters used by the different companies. The capacity of a digester depends upon its size and cubical contents; but the labor required to handle the output of the digester is practically independent of its size. As a consequence, a digester of a given size will require practically the same amount of labor as one one-half its size, which will naturally result in the labor cost per ton of sulphite of the one being twice that of the other.

From the tables submitted it will be seen that 25 sulphite pulp mills in the United States from which reports were obtained produced an aggregate of 441,458.6 tons of chemical pulp during the period covered by the schedules; the total cost as carried on the books of the firms was \$14,122,691.84; the average total cost per ton being \$31.99. The average cost of wood as a raw material per ton of pulp was \$18.58; the manu-

facturing labor cost \$3.84, and the other costs, \$9.57, making, as stated, the total of \$31.99.

The range of costs as shown in the table, from highest to lowest is quite wide; wood costs ranging from \$13.28 per ton of pulp to \$25.89; labor costs from \$2.00<sup>1</sup> to \$6.51, and other costs from \$6.72 to \$14.68; total costs from \$24.47 to \$40.16.

The significance of this range is brought out in Table 6, which classifies the total cost by groups showing the percentage of the total in each group and the average by groups. That is to say, 8.5 per cent. of the total production reported was produced at a total cost of between \$24 and \$26 per ton, the average for this group being \$24.47, while 15.3 per cent. was produced at an average cost of \$28.93 per ton, 19.2 per cent. at \$31.17, 29.7 per cent. at an average of \$33.15, 21.5 per cent. at \$34.89, while 5.8 per cent. of the total was produced at an average total cost of \$37.14 per ton.

<sup>1</sup> In order to analyze in detail the labor cost for mills producing at the lowest cost, a comparison has been made of two mills showing all labor charges for the lowest sulphite mill in Canada and the lowest in the United States

Comparison and analysis of the lowest manufacturing labor costs per ton of sulphite pulp in the United States and Canada:—

Departments of manufacture.	U.S.	Can.
Wood handling .....	\$0.30	\$0.20
Wood room .....	.23	.36
Acid plant .....	.17	.14
Digesters .....	.31	.21
Screens .....	.10	.05
Presses .....	.26	.50
Indoor labor, miscellaneous ..	.10	.08
Outdoor labor, miscellaneous ..	.12	.05
Foremen .....	.02	.11
Steam plant .....	.49	.16
Total manufacturing labor cost .....	\$2.00	\$1.86

A study of the labor costs in the manufacture of chemical fibre or sulphite is



interesting in respect to this question of range. Two plants have a manufacturing-labor cost under \$2.50 per ton, the average being \$2.26 per ton; these plants produce 7.9 per cent. of the tonnage reported. Four plants have a labor cost ranging between \$2.50 and \$2.99, the average here being \$2.87, 16.1 per cent. of the total tonnage reported being produced at this average rate and between the amounts named; 11.6 per cent. of the tonnage was produced in three plants at a labor cost of between \$3 and \$3.49, the average being \$3.41; four plants produce 11.5 per cent. of the reported tonnage at an average manufacturing labor cost of \$3.86 per ton within the range indicated by \$3.50 to \$3.99; five plants produce 35.4 per cent. of the reported tonnage at a labor cost ranging from \$4 to \$4.49, the average being \$4.15 per ton; four plants producing 11.3 per cent. of the reported tonnage have a labor cost ranging from \$4.50 to \$4.99, with an average of \$4.71; three plants produce 6.2 per cent. at an average of \$5.78 per ton, the average for the 25 plants and the total tonnage reported, i.e., 441,458.51 tons, is \$3.84 per ton.

#### Cost of Production of Newsprint Paper.

Another table presents a summary of the cost of newsprint paper in 38 mills in the United States, producing 940,478.1 tons of paper in the schedule period, at a total cost of \$30,921,400.39, or an average total cost of production of \$32.88 per ton. The lowest total cost in any one mill was \$24.50; the highest, \$43. The range in cost of ground-wood pulp per ton of finished paper is from \$8.26 to \$18.54, with an average for all of \$13.27; for sulphite pulp the range is from \$6.45 as the lowest to \$14.12 for highest, the average being \$8.63; for all materials the average cost was \$22.74 per ton of paper, with a range of from \$15.64 to \$29.22.

The average cost of manufacturing labor is \$3.27 per ton of paper, the range being from \$2.19 to \$7.26. The plant

producing at the lowest cost of \$24.50 per ton produces but 4.8 per cent. of the reported tonnage; only one plant produces at the highest rate, and its production is but seven-tenths of 1 per cent. of the reported tonnage.

Taking the average of the manufacturing-labor cost for ground-wood pulp (\$2.18) and for sulphite pulp (\$3.84), and considering that paper uses 80 per cent. of ground-wood and 20 per cent. of sulphite, the total manufacturing-labor cost from the rough wood to the finished paper would be \$5.782 per ton.

Table of average cost per ton of product for specified items entering into the cost of production of ground-wood pulp, sulphite fibre, and newsprint paper for mills in the United States reporting data:

Items.	Average cost per ton of:		
	Ground wood.	Sulphite fibre.	Newsprint paper.
Wood .....	\$10.20	\$18.50	.....
Sulphur .....		3.21	.....
Lime and lime-stone .....		.60	.....
Ground wood .....			\$13.16
Sulphite .....			8.63
Waste paper .....			.79
Fillers .....			.40
Other materials .....			.42
Manufacturing labor .....	2.18	3.84	3.27
Pulp stones .....	.12		.....
Felts .....	.09	.16	.82
Wires .....	.04	.04	.36
Screen plates .....	.10	.09	.05
Belting .....	.07	.13	.12
Lubricants .....	.05	.06	.08
Coal .....	.07	2.07	1.81
Wood .....		.17	.52
Finishing materials .....			.86
Other works expense .....	.27	.52	.69

Waterpower costs reported by eight establishments with tonnage of 204,340.8.

Includes electric power in three mills having 13 per cent. of the total product.

Water power ..	.93	1.36	1.31
Repair materials	.57	1.18	.85
Repair labor ...	.38	.78	.55
Administration expense ....	.36	.39	.45
Miscellaneous op- erating ex- pense .....	.27	.21	.26
Accident insur- ance .....	.03	.04	.03
Fire insurance.	.06	.07	.07
Taxes .....	.24	.25	.26

(Continued in next issue.)



### MONTREAL LETTER.

(Correspondence of Pulp and Paper  
Magazine.)

Montreal, 14th July, 1911.

A public issue of \$1,000,000 bonds of the Wyagamack Pulp and Paper Co., Limited, was recently made. The issued securities of the company are now at follows:—

	Authorized.	Issued.
Bonds, 6% .....	\$5,000,000	\$6,000,000
Common stock.	5,000,000	5,000,000

The price at which the bonds were issued is 95 per cent. of par and accrued interest, a bonus of 50 per cent. common stock accompanying the purchase. Although the public was only offered \$1,000,000 of the bonds, \$3,000,000 were issued, the difference of \$2,000,000 having previously been taken by the promoters. On the board of directors is Rodolphe Forget, M.P., the Hon. Robert Mackay, J. N. Greenshields, K.C., Charles Whitehead, and A. N. Pennington, Mr. Clarence J. McCuaig being also interested in the formation of the company. The Wyagamack Pulp and Paper Company, Ltd., promises to be one of the largest concerns of its character in the Dominion. The limits acquired by the Wyagamack company are well known among lumber and pulp people. They

are known as the Baptiste limits, and have been owned by the Baptiste family of Three Rivers for longer than any living man can remember. In addition to these mills, the company also has acquired the lumbering business of Alexander Baptiste, of Three Rivers, including saw mills, wharves, marine slips, machine shops and real estate. Considerable store is set upon a large island which the company has purchased. This island is situated in the St. Lawrence at the mouth of the St. Maurice River, and is splendidly adapted to the purpose of the company. Contracts have already been let for the erection thereon of a large pulp and paper plant, and work will be proceeded with immediately. It is expected that the plant will be ready for operation during the coming fall and winter. The initial capacity will be 200 tons of pulp and 50 tons of paper per day. It is the intention to proceed immediately to double the capacity of the paper mill, bringing the total output to 100 tons of paper per day. Additional interest attaches to the undertaking because of the intention to manufacture "Kraft" paper almost exclusively. The claim is made that the profit on this class of paper is greater than on the ordinary lines, in which there is so much competition.

The company owns not less than 1,121 square miles of timber and pulp land in the Province of Quebec. It is claimed that the Baptiste limits are not only among the best wooded, but the best situated in the entire province. The timber lands are situated in the St. Maurice River district, which is well watered and convenient for driving. An estimate of the contents, which is said to be conservative, is as follows: White pine, 497,000,000 feet, B.M.; spruce, 706,000,000 feet, B.M.; pulp-wood, 5,738,480 cords; total, 4,072,000,000 feet of lumber. The company will obtain power for its new mill from the Shawinigan Water and Power Company, with which an excellent contract has been made.

The International Paper Company, Limited, which was recently incorporat-

ed under the Dominion charter with a capital of \$100,000, has been organized, with headquarters at Valleyfield, where a favorable arrangement has been made with the town council. A building, well located for the purposes of the company, has already been acquired, and the concern will shortly commence to equip it with the first instalment of machinery for coated paper. The International Paper Company expects to be in a position to fill orders for coated paper at the rate of about five tons per day about the beginning of next year. The manager, who has given a good many years to this specialty in the United States, is a Mr. Morrow.

Pulp and paper men of Montreal, as well as lumbermen, look for a season in which prices are apt to be higher for forest products. At the present time the situation is said to have improved considerably among lumbermen, as compared to what it was a month or so ago. The trouble in the Province of Quebec seems to have been that the temperature throughout the winter was too constant. From December right through until March it seldom rose above freezing. Meantime the snowfall was moderately heavy, and when the spring finally opened the snow lay very thick, but light, upon the ground. It lacked the succession of icy crusts which ordinarily form from the falls of sleet and rain, or from the thaws alternating with heavy frosts. The result was that when the strong sun came out in the spring the snow simply faded away and ran down in water into the lakes and rivers before the ice had weakened sufficiently to permit the logs to be driven down the streams. The result was that drive after drive was in danger of being held up completely, more especially as the customary spring rains were entirely absent. Meantime, the long, dry spell had dried out the woods, and fires began in many sections, so that a number of the limits were in danger of being destroyed. Fortunately, both for the forests and for the drives, several heavy rains

took place in the nick of time. This put out the fires and filled the streams, so that thousands of logs, which it was feared would be held up until next season, were driven in safety to the mills.

While in many instances the situation was saved in respect to obtaining a sufficient quantity of logs the drought, to all intents and purposes, still continues, and pulp men declare that the water will be lower this season than in many years. It is feared by many that where the streams are not large the water power will not be sufficient to operate the mills, and in addition to this it would seem that the demand for pulp of all kinds has been very active and stocks are depleted. As a result, the general tendency of prices is strongly upwards, and in more than one instance advances have been obtained.

The following quotations are given:—

Ground wood pulp, per ton at the mills .....	\$19 to \$20
Sulphite pulp, per ton at the mills .....	38 to 39
"Kraft" soda pulp, delivered at mills .....	40 to 42

A very large contract for ground wood pulp was made at the above price very recently. It is expected that by the 1st of September the market will have advanced considerably, owing to the conditions described above. None of the mills will accept orders, it is claimed, at recent prices for delivery after that date. As for sulphite pulp, the demand largely exceeds the supply in Canada, as it is claimed that none of the mills have any stocks. Sales during the past month were made at an advance of \$2 per ton over previous figures. Kraft soda pulp is also in good demand.

It is doubtful if ever before the situation in news print was so strong as at present. The mills are not able to accept orders for increased quantities, and it is claimed that they are constantly refusing them. A large number of new mills are being erected in Canada, and some have feared that these

would not find sufficient demand for their product. This view is ridiculed by a prominent paper man, who declares that the opposite will be the case.

It would seem that the natural increase in consumption of news print in America is 300 tons a day, annually, the inference from which is that unless mills, having an aggregate capacity of 300 tons per day, are erected each year the demand cannot be satisfied. About the beginning of next year the Spanish River mill will augment the production of news print by about 100 tons per day, and a little later on the Lake Superior mill at the Soo will add from 100 to 150 tons. This will be further increased about the 1st of September, 1912, by 150 tons, when the Jonquiere mills will be ready. It is not believed, however, that the addition of these mills will have any effect in bringing about greater competition among producers, inasmuch as the consumption is increasing at least in as great a ratio as the production.



#### GERMAN PAPER TRADE.

The annual report of the German Paper Makers' Association for the year 1910-11, compiled by Herr Ditges, has been issued.

It shows that the German paper trade has participated in the general trade improvement since the end of 1909, and although prices have not been so high on the average as in the preceding year, all the mills have been busy. The most striking advance is registered in the case of printing papers; the consumption of "news" paper is now 4.25 kilos. (about 9½ lbs.) per head of the population, whereas twelve years ago it was only 2.4 kilos.

The number of limited companies engaged in the manufacture of paper is forty-seven, representing a total of nearly six millions sterling; the average net profit available for distribution in the case of these companies works out for 1910 at 5.9 per cent. on the capital, as against 4 per cent. for 1909 and only 3.87 per cent. for 1908. In 1910, however, twelve companies were unable to

pay dividends. The prospects for 1911 are hopeful.

On the technical side the most important event of the year has been the rapid establishment of the Millspaugh suction roll in substitution of the couch roll.

The exports of paper and boards from Germany show a very considerable increase for 1910, Great Britain being by far the most important customer; on the other hand, the imports show only a very slight increase. The increased exportation has been effected in the face of considerably increased tariffs, especially in France and the United States. The great rise in exports is not entirely a healthy sign, since to some extent it is due to the slackness of the home market.

Turning to raw materials, the steady increase in the exports of German wood pulp has been maintained, which is satisfactory, seeing that there is no scarcity of this material. On the other hand the exportation of paper making rags is causing some concern. The exports of rags increased by 31.3 per cent. in 1910 as compared with 1909, while the imports increased only by 6.5 per cent. Half the rags exported from Germany go to the United States, one-fifteenth to England. This serious depletion of the supply of rags for home use is being used as an argument for the imposition of an export duty.

The scarcity of rosin and its ever-ascending price still causes great perturbation. The appeal issued by the association for the establishment of a research fund for the discovery of a rosin substitute has not yet succeeded.

This report contains the results of a production-census taken by the association, showing the production of paper and boards in Germany during 1909. Considerable opposition was encountered in taking the census and in some cases the figures had to be estimated. The number of mills, paper and board mills together, amounts to 663; the year's production totals 1½ million tons and the value exceeds \$100,000,000.



## New Zealand as a Paper Market.

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The following interesting review of the paper trade of New Zealand is from United States consular reports:—

United States manufacturers of printing and writing paper have suffered almost a complete loss of their New Zealand business within recent years.

Canada, through the preferential surtax on printing paper, which went into effect in April, 1904, has taken from the United States almost the entire business of supplying printing paper for the newspapers of New Zealand. Up to that time printing paper had been admitted free of duty into New Zealand, but the preferential tariff, which amounted to 20 per cent. ad valorem, raised an effective bar against the admission of United States paper in competition with paper from other British countries, which was still admitted free.

The complete gain of this business by Canada is shown by the fact that in 1903, the year before the preference went into effect, the eastern states of the United States exported to New Zealand 46,823 hundredweight of paper and the western states 11,630 hundredweight, a total of 58,453 hundredweight, while in 1909, the last year for which customs figures are available, the eastern states of the United States exported only 3,913 hundredweight, and there were no exports from the western states. Canada, however, which in 1903 exported 2,231 hundredweight of printing paper to New Zealand, in 1909 exported 86,889 hundredweight. Printing paper is to-day Canada's most profitable article of export to New Zealand, the sales in 1909 amounting to \$286,286, while sales from the United States amounted to \$12,692.

### Britain Leads in Printing Paper.

Printing paper for books, periodicals, etc., including paper of more expensive grades than are used for newspapers, is supplied to New Zealand now, as has always been the case, by the United

Kingdom. As neither the United States nor Canada ever did any important business in New Zealand in this class of paper, the preferential tariff did not affect the situation in this class in the same proportion as in printing paper for newspapers. Although sales of paper from the United Kingdom have increased from 56,700 hundredweight in 1903 to 98,521 hundredweight in 1909, this increase has been due mainly to increased local use of such paper, and also to Germany's loss of trade in this class of paper on account of the preferential surtax. Germany in 1903 furnished 12,687 hundredweight and in 1909 practically nothing. The United Kingdom's sales of printing paper, including chiefly the more expensive grades, to New Zealand in 1909 amounted to \$431,357.

The substitution of Canadian paper for that from the United States by the newspapers of New Zealand was accomplished without any advance in prices. In fact, curiously enough, there was even a drop of about 8s. (\$1.95) per ton in the local price of newspaper printing paper after the imports from the United States had been practically barred by the preferential surtax of 20 per cent. ad valorem. This seemed due to the fact that Canada at about that time had largely increased its mill capacity for making paper of the kind used for newspapers, and so was prepared for the opportunity, which so suddenly came its way, to take trade from the United States. It seems likely that, even had Canada not been favored with a preferential surtax, it would have encroached during the past seven years on the United States sales of printing paper, but it would probably not have completely captured the New Zealand market.

### Contrast with Conditions in Australia.

In Australia, where printing paper from all countries is admitted free of duty, American manufacturers, despite

strong Canadian competition and some competition from England, still control over half the trade. The strong position of United States manufacturers in the Australian market is due chiefly to the very favorable reputation they have achieved for reliability and fairness in dealing with the local newspapers. As Australian newspapers are published at vast distances from Europe and America, it is of the first importance for their publishers to deal with paper manufacturers on whom they can depend implicitly for supplies needed, and never have they been disappointed or embarrassed by depending on the United States, except on one particular occasion, when some inconvenience was caused by the wreck of a ship loaded largely with paper.

Australian newspapers get their supplies of printing paper when imported from the United States at the same prices, I understand, as United States newspapers, plus transportation charges to Australia. Most of the leading dailies of Australia, including one in Sydney with a circulation of 100,000, are printed on paper from the United States. In Australia, at the time the new Customs Act of 1907 was being discussed, it was suggested that a preferential tariff should be imposed on printing paper, but this was defeated on the ground that any tax on such paper would be a tax on public intelligence, and so contrary to public policy.

#### **Freight Rates in Canada's Favor.**

In New Zealand, Canadian manufacturers of printing paper for newspapers now have no competition of any sort except from England, and this is decreasing, on account of the fact that freight rates on paper from Montreal to New Zealand are much cheaper than from England to New Zealand.

#### **Trade in Writing Paper.**

In writing paper in New Zealand, the United States has also made a very poor showing, its sales in 1909 amounting to only \$9,563, as compared with \$175,238 worth sold by the United Kingdom. This is not excusable, as in the case of

printing paper, on account of preferential tariff, for all writing paper is on the free list; moreover, American manufacturers have a natural advantage in cheaper freights to New Zealand from the eastern coast than the United Kingdom can get.

Sales of United States writing paper in New Zealand experienced a sudden check three or four years ago at a time when there was a "boom" in writing papers in the United States, prices rising about 7½ per cent., whereas English prices went up at the same time only about 2½ per cent. This upturn in the United States market occasioned an immediate diversion of the New Zealand trade to England, and United States writing paper manufacturers have not regained the trade lost at that time.

While New Zealand importers admit that United States writing papers are generally of superior quality and that prices may not average unreasonably high, they state it is more advantageous for them to buy their supplies in England, where they can get steadier quotations and arrange options for shipments of certain fixed quantities for fixed prices for a year ahead, whereas when they deal with the United States such options cannot be arranged, and it is necessary to follow erratic price tendencies and to cable every time for a quotation before arranging for importation. As the local paper importers naturally wish to carry out their contracts with local retailers at some assured profits, they consider that patronage of the American trade forces them to take undue risk and to become overstocked at times with goods too high to move rapidly in the local market.

#### **Large Consumption of Paper in New Zealand.**

The loss of United States trade in printing and writing paper in New Zealand seems particularly regrettable, for, in proportion to its population, New Zealand is an unusually heavy consumer of such products. There is scarcely any illiteracy here, practically all the people

habitually spending much of their time in reading and writing, it is surprising what a large number of newspapers get good, popular support in New Zealand. Although the population is only slightly over a million, including (December 31, 1909) 552,168 males and 490,829 females, there are 233 publications in this Dominion registered as newspapers, including 67 daily papers, 32 tri-weekly, 26 semi-weekly, 68 weekly, 4 fortnightly, 1 three-weekly, 1 four-weekly, and 34 monthly.

In personal and business correspondence the fact that New Zealand has a system of universal penny (2 cents) postage has given a great stimulus to the use of writing paper. A letter weighing 4 ounces can be sent to any part of New Zealand for an equivalent of 2 cents, and to other countries, including the United States, the rate is 1 penny (2 cents) per ounce. Such cheap postage, of course, tends very greatly to encourage letter writing. There has been a great difference in this regard between New Zealand and Australia, for in the latter country a letter cannot be sent even locally, like from Sydney to Melbourne, or even outside the limits of Sydney, without paying 2 pence (4 cents). After May 1st, however, of this year letters can be sent anywhere within the Commonwealth for 1 penny (2 cents). In 1909 the total number of letters posted and delivered in New Zealand was 186,926,337.

#### **Manufactured Stationery.**

Other stationery besides writing paper used in New Zealand is imported mostly from England. In 1909 about \$650,000 was imported from England, and about \$42,000 worth from the United States, and a good deal was manufactured locally from English imported papers. Under manufactured stationery the tariff regulations include such articles as account books, manuscript books and letter blocks, plain or ruled books, billhead, invoice, and statement forms, printed or ruled paper, counter books, cheque or draft forms, tags, labels not printed or lithographed, blotting pads, sketch-

books, book covers, copying letter books, manifold writers, albums, diaries, birthday books, plain or faint-lined books, printed window tickets, printed, lithographed, or embossed stationery, and Christmas, New Year, birthday, Easter and other cards and booklets. All these articles, for which the local demand is quite heavy, must pay 25 per cent. duties ad valorem with a surtax of 12½ per cent. ad valorem on goods not produced in British countries.

Typewriter papers, for which the local use is also quite extensive, are also admitted on the same basis as general stationery. Some attempt is made by United States typewriter companies to sell American typewriter paper here, but the preferential surtax of 12½ per cent. ad valorem makes it too expensive for local purposes in comparison with paper from England and Scotland. It is only in writing paper, known as butter paper, or vegetable parchment papers, and wax papers unprinted, also in cardboard and pasteboard, that United States manufacturers have equal opportunities here with British manufacturers, such papers all being admitted free. Material, however, for cardboard boxes, known as "box papers," while admitted free from British countries, must pay 20 per cent. ad valorem if imported from other countries.

Writing ink pays 2s. (48.6 cents) per gallon ordinary duty, with a preferential surtax of 1s. (24.3 cents) per gallon. Printing ink is admitted free from British countries, but foreign ink pays 10 per cent. ad valorem. The ink used in New Zealand comes mostly from Scotland, but some is made locally, and there is an increasing tendency to import fresh-made ink from Australia. Pencils come mostly from Bavaria, some from New York, some from England. There is a good sale in New Zealand for United States fountain pens.

#### **Wrapping Paper.**

In wrapping paper, especially in what is known as "kraft" brown, Sweden, Norway and Germany are the chief foreign sources of supply for New Zea-



land. In 1909 Sweden sold \$9,324 worth of such paper in New Zealand, with prices ruling at about \$12 per ton, f.o.b. Gottenborg. A great deal of common brown wrapping paper is made locally, chiefly from old grain sacks. The United States does a fair business here, about 1,700 tons per month in "union bags," made up of thin brown and very strong paper, chiefly used for holding small purchases of fruit and groceries. Wrapping paper of all kinds, not printed, pays 5s. (\$1.22) per hundredweight duty under the general tariff, and 2s. 6d. (61 cents) per hundredweight preferential surtax for goods imported from other than British countries; coarse paper bags, 7s. 6d. (\$1.82) per hundredweight general tariff, preferential surtax of 3s. 9d. (91 cents) per hundredweight.

#### **Possibility of Developing Domestic Industry.**

It seems unlikely that New Zealand will ever develop any important paper industry of its own, except for the cheaper classes of wrapping paper. The country has forests containing certain kinds of wood suitable for paper manufacture, but such wood can be more profitably used for other purposes, and most of it is too hard for cheap conversion into paper; moreover, local labor seems too expensive for successful competition with other countries unless very high protective tariffs were imposed. There is a vast amount of water-power in New Zealand, but very little has yet been developed, so that it can be used for paper mills. One of the leading paper mills in New Zealand for making wrapping paper, at Dunedin, has just been destroyed by fire.

With regard to the possible establishment of a wood-pulp industry in New Zealand for white paper making, the High Commissioner of the Dominion at London, who was recently requested by his government to obtain any information possible, has transmitted some interesting particulars which are published in the March Journal of the De-

partment of Agriculture of New Zealand, these having been supplied by the Albert Reed Co., of London, which operates large pulp mills in Newfoundland. It is stated:—

"The minimum capacity mill that could be calculated on to give any satisfactory return in New Zealand would be one to make about 300 tons of paper per week. The mill would require a site where there was 5,000 horse-power, and where the wood could be got with very small cost of transit. Such a mill would cost, on a good average site in the United States, about \$1,000,000. This includes the plant for mechanical pulp, sulphite pulp, and paper machinery and plant. The estimate is based on a production of ordinary newspaper. For the manufacture of better quality paper the cost of the mill would be considerably increased, and more power required. Owing to the necessity of importing machinery from distant countries, the cost of the plant would be correspondingly greater in New Zealand.

"The wood chiefly pulped in America is spruce; in Scandinavia it is termed white pine. These woods are comparatively free from turpentine, which characteristic is the principal requirement for pulping purposes. Assuming that New Zealand has suitable woods, that labor would cost about the same as in the United States, and that coal for fuel is available at a cost not exceeding \$5 per ton, then ordinary newspaper might be expected to cost about \$40 per ton to produce at the mill site. About 25 hundredweight of coal per ton of paper is used in the process of manufacture. Doubt is expressed whether conditions in New Zealand would allow of the establishment of a pulp paper industry able to compete with paper supplied from countries where the industry is developed on a large scale with immense resources.

"Some of the finest wood-pulp paper mills in the world have been recently established in Newfoundland, which is found to possess the natural resources and conditions for the industry in a high



degree. The Harmsworth publishing concern of London, for instance, has recently expended the sum of \$6,000,000 in the purchase of forest areas in the interior of the island, the construction and equipping of mills, building of railway lines and waterside terminals, and generally in the creation of their paper milling enterprises. An interesting advantage claimed for the Newfoundland forests is that they reproduce themselves very rapidly after being cut out or burned over, and can be used again in the manufacture of paper and pulp within thirty years.



### INTERESTING TIMBER LIMIT CASE.

(Continued from Page 256.)

logger, estimated the fir which he thought fit to cut, the cedar, and some of the hemlock, discriminating against hemlock, because at that particular time hemlock was not in demand. It is apparent that he estimated the timber in the manner in which it would be estimated by a logger who cuts the merchantable logs for sale to mill men and has no further interest in anything left. Some of these witnesses estimated poles and piling separately; others did not include that class of timber at all. None of them included railroad ties and cordwood.

An attempt was made on behalf of the plaintiffs to show that the term "timber" had a trade meaning, or a local customary meaning, such as was placed upon it in this litigation by the plaintiffs, but the witnesses relied upon to prove such trade or customary meaning specially failed to do so. I think the purchasers had in contemplation everything which would give either a present or prospective value to the timber; the fact that forests are being rapidly exhausted, that prices of their products are increasing, and are likely to increase very greatly in the future; that the in-

creased demands will bring into the market classes of lumber and of other products of the forests which are now not considered marketable; in other words, inferior in grade to that which now readily finds a market. The parties may also well have had in mind the increasing facilities to be provided by railways now in the course of construction, or in contemplation, which will make accessible, or help to make accessible, tracts of timber which are at present inaccessible. True, the plaintiffs' principal object was the manufacture of lumber, but that does not exclude their contemplation of all the incidental profits and advantages to be derived from their holdings, advantages which may not all accrue at the present time, but may well accrue during the period over which, in the ordinary course of business, the operations of the plaintiffs will extend. The defendant provided for the future as well as for the present when he acquired the limits in question, and the advantages which would accrue from such ownership passed to the plaintiffs under the terms of the agreement.

There is another phase of the matter not unworthy of notice. The timber was valued in the inventory at from 50 cents to \$1 per thousand. It is clear from the evidence that some of it was worth a great deal more than \$1 a thousand standing in the tree. It is too much to assume that the parties here ignored the fact that all limits contain good, bad and indifferent timber; while a certain proportion of the timber on these tracts was of little or no value, another proportion was of a value beyond that specified in the inventory. The plaintiffs virtually claim the benefit of getting the high-class timber, and being paid by defendant as for a shortage figured out by rejecting the poorer class, or that which at the moment could not be manufactured into a saleable product. The evidence of the plaintiffs' witnesses shows that milling companies may, and do, take off part of the timber for present purposes, and hold the balance either for the future use by them-

selves, or to dispose of to others for the manufacture of poles, railroad ties, piling, cordwood, or anything else fit for the market. According to plaintiffs' contention, this marketable commodity is not an asset, and it was excluded in the estimates of the plaintiffs' cruisers.

Under the legislation of this province the term timber includes not only saw-logs, but poles, piling, railroad ties and cordwood, and, I think, some other classes. The timber these parties were dealing with was held under license lease, or grant from the Crown, subject to a royalty when cut upon the different classes of timber mentioned above, and, with the exception of one or two of the classes, reduced to board measure. This is the "timber" that is bought and sold in a business way constantly, and there is nothing to indicate that the parties intended a more restricted meaning to be placed upon the term "timber" in the contract than it bears generally in connection with the acquisition or sale of timber lands generally.

The appeal should be allowed and the action dismissed with costs.



#### SCANDINAVIAN TRADE. (

C. E. Sontum, Canadian trade agent at Christiania, Norway, writes this to the Dominion Government:—

"The market for cellulose in Sweden is unsteady, and the main reason for this condition is the reciprocity negotiations now under way between Canada and the United States. There is naturally considerable unrest in the trade. Many of the Swedish makers of cellulose are of opinion that the passage of the agreement now contemplated in America will mean the total loss of United States trade to European makers. This may be the reason why several inland firms have lately closed contracts for delivery four or five years hence at prices which will certainly not yield any profit, considering the steadily increasing prices for wood and the rising wages.

Mr. Sontum says the Swedish trade press thinks that the fear of being excluded from American markets is somewhat exaggerated. It is pointed out that Canadian mills are mostly for grinding, or eventually paper mills for news print, while cellulose is neglected."



#### SCANDINAVIAN PULP ASSOCIATIONS.

The Swedish and Norwegian wood pulp associations, as the outcome of recent meetings, have decided to limit production. In fact, an agreement went into effect June 1st, to continue until January 1st, 1913. The agreement, it is understood, calls for a reduction of at least 150,000 tons in the production of mechanical pulp for the period stated, but this does not apply to chemical pulp.

The annual exports of pulp of all kinds from Gothenburg to the United States have increased from \$287,677 in 1905, to \$1,232,474 in 1910, these shipments, however, consisting chiefly of chemical pulp.



#### THE PRETEXT PUNCTURED.

There is no ground upon which any citizen of this country can for a moment justify his opposition to the Root amendment. No American interest could in any conceivable way be benefited by such opposition. The pulp and paper clause in the agreement was intended to give the Canadian manufacturers free access to the American market, which was urged for the purpose of reducing the cost of paper to the American publisher. If it be conceded that the government is justified in injuring one great industry for the benefit of another, let it also be remembered that the Root amendment contained nothing which could possibly diminish the benefit it is proposed to confer on the publishers. Free paper was not to be disturbed—"Paper," New York.

## New Incorporations.

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Northern Printing and Supply Company, Limited, Winnipeg, Man., capital \$15,000. To take over the business of "The Frederick Post Company," and to carry on business as printers, publishers, bookbinders, etc. George Ernest Siebert, Clarence Wilfred Jackson, William Andrew Sweatman, Arthur Wellesley Wilcox, and John Gordon Fraser, all of Winnipeg.

The Holroyde Publishing Company, Limited, head office, Winnipeg, Man., capital \$15,000. To take over "Becky Holroyde's Magazine," to carry on the business of magazine and newspaper proprietors, printers and publishers. Eugene Walderman Peters, Edward Leslie, Becky Emma Holroyde, Olive Milns, and Doris W. Lloyd, all of Winnipeg.

The Columbia Mutual Lumber Company, Limited, capital \$1,500,000, with head office at Victoria, B.C., has taken over timber licenses from the Columbia River Timber and Transportation Co., the Pioneer Lumber Co., Limited, and the Canadian Lumber Co., Limited, and will carry on business as timber merchants, pulp mill-owners, etc.

Canadian Puget Sound Lumber Company, Limited, 1114 Langley Street, Victoria, B.C.; capital \$5,000,000, have acquired the property, assets, etc., of the Michigan Pacific Lumber Co. and the Michigan Puget Sound Lumber Co., with power to carry on the business of timber merchants, wood pulp manufacturers, etc.

The Fort Fraser Land Company, Ltd., capital \$500,000, head office, London, England, has been incorporated in British Columbia to carry on business as timber merchants, pulp and paper manufacturers, etc., and to operate pulp and paper mills. John Heaps, 541 Hastings Street, Vancouver, is British Columbia agent.

B. Grier, Limited, head office, Montreal, Que., capital \$1,000,000. To carry on the business of lumbering and manufacturing lumber, and to operate pulp and paper mills. Herbert J. F. Grier, Katharine Winnifred Grier, and Helen Jane Grier, of Montreal, and Ian Hamilton Benn, of London, England.

National Paper Co., Limited, head office, Montreal, capital \$100,000. To construct and operate pulp and paper mills, John Bertell Morrow, Charles Minot Gage, Edwin Botsford Busteed, Campbell Lane, and Charles Lovelace Buchanan, all of Montreal.

Mount Lehman Lumber, Timber and Trading Co., Limited, head office, Mount Lehman, B.C., capital \$30,000. To own and operate saw mills, to deal in wood, pulp and paper of all kinds, and in manufactures of same.

Renata Lumber Company, Limited, situated at Renata, on the Lower Arrow Lake, B.C., capital \$25,000. To carry on a general timber and mill business in all its branches, dealing in lumber, pulp-wood, wood pulp, etc.

Suburban Construction Co., Ltd., head office, Toronto; capital stock, \$100,000. To carry on lumbering, deal in pulp concessions, and manufacture and deal in products for same.

Sunset Lumber Company, Limited, Vancouver, B.C., capital \$30,000, has been given power to carry on business as timber merchants, pulp and paper mill-owners, etc.

Gordon & Gotch, head office, Toronto; capital stock, \$40,000. To engage in a general printing, publishing and stationery business.



The Edward Partington Pulp and Paper Co., of St. John, N.B., has increased its capital by \$200,000.

### RUMORS FROM HULL AND OTTAWA.

There have been rumors on both sides of the Atlantic that the Booth and the Eddy Co.'s paper mill and timber limit interests are to be acquired by British or foreign capitalists, but on being interviewed by the local press, neither Mr. Booth nor Mr. Rowley, of the Eddy Company, would confirm the report. Propositions appear to have been made, but not accepted.



### RAG AND PAPER STOCK MARKET.

Montreal, July 8th, 1911.

During the past month the market for rag and paper stock has undergone a number of changes. A Canadian exporter who has recently been visiting New York states that in all his experience he has never seen such a poor market for the lower grades of paper stock, such as common waste. This is now selling in New York as low as \$2 per ton, whereas the average price is probably three times that figure. The low price is due to the light demand for this class of material. The inactivity in the general trade in the country is the explanation for the small demand. Trade conditions have an important effect upon the paper box trade of the country, activity being immediately reflected in an increased demand, and dullness having the effect of bringing the paper box business almost to a standstill. The latter would seem to be the case at present, and, as board for making boxes is made largely from the lower qualities of stock, one reason for the low price is supplied.

In the Montreal market, however, where there is less chance for an oversupply of this material, prices have shown little or no tendency to decline and have held steady up to the present.

In the case of the better qualities, however, prices have advanced on many lines. White shirt cuttings are up 25 cents per 100 pounds or more, being now quoted at \$5.25 to \$5.50; bleached

shoe rag cuttings are up 50 cents at \$4.25 to \$4.50 per 100 pounds; light print shoe rag cuttings being up 25 cents at \$3 to \$3.25. Blue overall cuttings are firm at \$3 to \$3.50 per 100 pounds, while old bagging has advanced slightly to 60 and 70 cents. At these prices the demand for the better quality of goods is fairly active. Jute bagging is firm and supplies are rather limited.

Roofing stock is, if anything, a little in less active demand. The following are the current quotations:—

Shirt Cuttings—	Per 100 lbs
White .....	\$5 25 to \$5 50
Unbleached Cottons....	4 25 to 4 50
Shoe Rag Cuttings—	
Bleached .....	4 25 to 4 50
Mixed white .....	2 75 to 3 25
Light print .....	3 00 to 3 25
Overall Cuttings—	
Blue .....	3 00 to 3 50
Brown .....	2 00 to 2 50
Paper Shavings—	
Hard white .....	2 00 to 2 25
Soft No. 1 white .....	1 50 to 1 75
Soft No. 2 white.....	1 25 to 1 30
Mixed shavings .....	0 45 to 0 55
Ledger stock .....	1 00 to 1 25
Printed book .....	0 90 to 1 00
Common waste .....	0 25 to 0 30
Roofing Stock—	
No. 1 satinettes .....	0 75 to 0 80
No. 2 satinettes .....	0 45 to 0 50
Sundries—	
Old bagging .....	0 60 to 0 70
Manilla rope .....	2 00 to 2 25



### UNITED STATES PULP AND PAPER MARKETS.

Our trade exchanges report the condition of the water powers as again unsatisfactory for pulp-making, and the drought of the last two or three weeks will tend to lower the streams further. The number of mill customers who have decided to close contracts for their supplies for 1912 is taken to mean that lower prices are not confidently looked

(Continued on Page 74.)



## Pulp and Paper News.

The Belgo Pulp and Paper Co., report orders ahead for a year.

\* \* \*

The Northern Box Co., of Montreal, Que., has made an assignment.

\* \* \*

The Model Printing Co., Montreal, paper jobbers, are building a new factory on Dowd Street.

\* \* \*

The Sherbrooke Land and Water Power Co. will erect a pulp-wood plant at Sherbrooke, Que.

\* \* \*

Messrs. Edwin Crabtree & Sons, Crabtree Mills, Que., are installing a large, new paper machine.

\* \* \*

The Eastern Canada Paper and Pulp Co., Limited, Murray Bay, Que., will increase its capital to \$15,000,000.

\* \* \*

The North Shore Power, Pulp, Railway and Navigation Co., Clarke City, Que., have recently put in several additional grinders.

\* \* \*

Wood Bros., of Montreal and Winnipeg, large importers of wall paper, are installing a wall paper coloring machine in their Montreal factory.

\* \* \*

G. S. Hutchinson, late of the Government Printing Bureau, Ottawa, has joined the firm of L. P. Bouvier, Toronto, large envelope manufacturers.

\* \* \*

E. Colbert, late of the West Virginia Pulp & Paper Company, has been appointed superintendent of the Canada Coating Mills at Georgetown, Ont.

\* \* \*

R. O. Swezey, consulting engineer of Quebec, is now in Newfoundland investigating timber limits and waterpowers on the island with a view to their development.

The Wm. Cauldwell Paper Co., of Montreal, Que., closed their Toronto office at 28 Wellington Street West a short time before the death of Mr. Cauldwell.

\* \* \*

The Ottawa Board of Control recently changed the name of Division and Bridge Streets, which are practically one, to Booth Avenue, in honor of Mr. Booth, the paper manufacturer.

\* \* \*

Congratulations and good wishes are being extended to Robert F. Harrison, sales manager for F. Reddaway & Co., Montreal, who was married to Miss Lily E. Morris, of England, on the 28th of June.

\* \* \*

The Rudd Paper Box Company, Toronto, has increased its capital stock from \$60,000 to \$150,000. It is their intention to install new machinery in the autumn, and to add another storey to their present building.

\* \* \*

James Beveridge, president of the New Brunswick Pulp and Paper Co., has returned from his trip to England. A new machine is to be installed in the company's mill at Millerton, to increase its output of Kraft paper.

\* \* \*

It is reported that a new pulp project is being started on Cousins Inlet, B.C., to be known as the Ocean Falls Pulp Mill. This enterprise is backed by Canadian and Seattle men, and is expected to produce about 150 tons of pulp a day.

\* \* \*

Mr. John G. Sutherland, of the Minneapolis & Ontario Power Co., International Falls, Minn., was in Toronto last week on a flying business trip. It is

reported that the company with which he is connected will build a 65-ton paper mill at Fort Frances, Ont.

\* \* \*

The Partington Pulp Mill of St. John, N.B., has decided to purchase two lots recently leased from the city at Union Point, N.B. The city places a price of \$2,000 on each lot, so the company will have to pay \$4,000 for the land. On one of the lots will be bored an artesian well.

\* \* \*

Hills & Tyrrell, Ltd., 7-9 King E., Toronto, are now Canadian agents for the products of Hills & Co., Ltd., Bayer St., Golden Lane, London, England, manufacturers of Christmas and New Year cards, menu cards, greeting cards, dance programs, calendars, books, booklets, etc.

\* \* \*

The Gres Falls Company, of Three Rivers, Que., one of the well-known lumber, lath and rossi-wood producers of Quebec, are now in the pulp industry, and are turning out about 40 tons per day of ground wood pulp, which is being shipped to the States. They are considering the question of increasing this output.

\* \* \*

The auction sale of the Imperial Pulp & Paper Mills, of Sturgeon Falls, Ontario, which was postponed from June the 13th on account of the inability of certain intending purchasers to be present, was held on July the 13th. As there were no bidders Mr. E. R. C. Clarkson, the assignee, decided to sell the property by private treaty.

\* \* \*

The annual meeting of the shareholders of the Watson, Foster Company, wall paper manufacturers, was held in Montreal on the 6th ult., and the following were elected directors for the ensuing year:—Hugh Watson, president; S. S. Boxer, vice-president; W. A. Sutherland, W. B. Foster, J. H. Gallagher, W. I. Gear, R. H. Gillean.

\* \* \*

A reinforced concrete pulp mill for the Pejepscot Paper Co. at Topsham, Maine,

has recently been completed. In building the mill, the construction company found it necessary to erect coffer dams at two levels, enclosing about 106,000 sq. ft. The work was so started and carried on that the crushed stone furnished by the excavation of 5,000 cu. yds. of ledge was used in the concrete.

\* \* \*

The new Spanish River paper mill at Espanola, Ont., is progressing rapidly. The foundations are now complete and the steel work is in course of erection. J. H. Wallace & Company, the constructing engineers, state that in their experience of building over forty pulp and paper mills no work of such magnitude has gone on more rapidly. We hope to give a description of this plant in another number. It is expected that paper will be produced at the mill by November next.

\* \* \*

We regret to hear of the death of William Cauldwell, president of the Cauldwell Paper Co., Montreal, Que. For many years Mr. Cauldwell was connected with Brown Bros., wholesale stationers, Toronto, and went to Montreal in 1902 as manager of the Canada Paper Co. A little over a year ago he organized the Cauldwell Paper Co. Mr. Cauldwell was also chairman of the Montreal branch of the Canadian Manufacturers' Association.

\* \* \*

James Davy, proprietor of the Thorold Pulp Mill, on the east bank of the Welland Canal at Thorold, was awarded \$250 damages at Osgoode Hall last month for injuries done to his property by the Foley-Reiger Pulp and Paper Company, whose mill is adjoining the plaintiff's. The two mills use the same tail race, and Mr. Davy alleged that damage was done to his property by the refuse which came from the other mill, and that the Foley-Reiger Company had no right to use the race to his injury.

\* \* \*

The Garden City Paper Mills Co., Limited, of St. Catharines, Ont., which obtained a charter a few weeks ago,

and is capitalized at \$100,000, held its first meeting recently and elected the following directors: William H. Howe, Buffalo, N.Y., president; L. H. Gardner, Mumford, N.Y., vice-president; R. M. Myers, Rochester, N.Y., secretary-treasurer. The company is making arrangements to start its new tissue mill at St. Catharines at an early date. Building operations have commenced, and the company expects to have the plant in full operation in three months' time.

\* \* \*

We have received from the John McDougall Caledonian Iron Works Co., Limited, Montreal, a very attractive catalogue of their turbine pumps. This company have recently completed 15 centrifugal pumps for the Powell River Paper Co., Limited, of Powell River, B.C. The shipment includes two twelve-inch two stage turbine pumps, each having a capacity of 4,000 U.S., or 3,333 Imperial gallons per minute against a head of 100 ft. They are supplied with extended shafts for direct connection to water wheels at 375 r.p.m., and are located in the screen room to carry ground wood stock to deckers. This carload also includes two 12 volute pumps, each having a capacity of 4,200 U.S. gallons or 3,500 Imperial gallons per minute against a head of 40 feet. They are driven by 75 h.p. motors made by Allis-Chalmers-Bullock Limited.

\* \* \*

J. R. Booth will establish an eight-hour day in his paper mills at Ottawa. He will employ three gangs working eight hours each, instead of two gangs working eleven and thirteen hours, respectively. At the start only 54 men will be affected, but later it is expected that the shorter hours will apply to the whole staff. The present wages for the paper mill workers, which range from \$1.50 to \$4.25 per day, will be modified slightly, as Mr. Booth had raised the scale to compensate for the long hours. It is regarded by all parties to the agreement that the shorter hours are being granted without any practical reduction of pay. The change has been

brought about after long agitation by the men though it has always been carried on in the friendliest spirit with their employer. Mr. Booth let it be known that, while he dissented from conferring with the foreign representatives of any union, he was glad to talk over conditions with his own employees at any time. The agreement will go into effect as soon as the mechanical arrangements can be made equal to continuous work. The workers used the argument that the increased output from the mill would justify the extra expense, and one of the superintendents holds the opinion that with fresh crews three times a day, production would be greater. The new regulation will add 50 per cent. to the paper mill hands employed in the Booth mills. The pay roll of this firm already amounts to \$3,000 a day.



#### CARVER'S PAPER PLUG MACHINE.

The Paper Products Co., of Weldon, N.C., have acquired the rights to the Carver paper plug machine, and have secured the services of the inventor to carry on its manufacture.

This machine is a great improvement over the old method of making plugs to go in rolls of paper, bungs for roofing paper, screen wire, etc. It is automatic in operation, the operator simply feeds the squares into it, end to end, and they come out finished plugs. In this machine any length stuff can be used, from one foot up to twenty or longer, and the ends do not have to be squared or pointed, nor does the stock have to be equalized. The machine very seldom loses over one plug to a piece, and never over two. It will make from 18,000 to 25,000 in 10 hours with one operator. It would take at least three men to make this amount on the old style machine. A saving of two men at \$2 a day, in four months would amount to \$416, or enough to pay for the machine. The knife can be set to make any size up to four inches

in diameter, two and one-half inches long, either bored or solid, and will make plugs entirely round, or leave the large end square, or of irregular taper. The cam shaft has cone pulleys with three changes of speed adapted to the different classes of work. The fast speed makes 3,000, the middle 2,200, and the slow 1,200 per hour. The machine is equipped with countershaft, pulleys, hangers, one knife, one saw, and a one and one-eighth inch drill. Floor space, thirty inches by six and one-half feet. Weight, crated ready for shipment, about 2,100 pounds.



#### ROSIN IN SULPHITE PULP.

In the *Wochenblatt für Papierfabrikation*, Dr. P. Klemm describes an extremely simple microscopical test for the presence of rosin in sulphite wood pulp. It is well known that badly manufactured pulps are liable to contain considerable quantities of rosin, which has been held in suspension in the digestion liquor, but which has been re-deposited in the pulp owing to errors in the draining and washing of the digested product. The only way to ascertain accurately the percentage of rosin in the pulp is by extraction with ether, but this method is tedious and requires a certain amount of chemical skill and apparatus.

Dr. Klemm's test is very simple and rapid; it may be applied by any one accustomed to microscopic work, and with a little practice it is easy to determine whether the quantity of rosin in a sample of pulp exceeds that which may reasonably be expected to be present without creating trouble in the paper mill. The test is based on the staining of the particles of rosin in the pulp without staining the fibres, and the examination of the stained particles under the microscope. The sample to be tested is steeped in water, shaken to a

loose pulp, and then drained and pressed until the excess of water has been removed. The moist pulp is then immersed in a staining liquid consisting of a strong solution of the dyestuff "Sudan III." in a mixture of three parts of alcohol to one of water. This mixture contains sufficient alcohol to hold the dyestuff in solution, but not sufficient to dissolve the rosin out of the pulp to be tested. As the result of the treatment the particles of rosin absorb the dye, but the fibres of the pulp, being saturated with water, will not take up the dye from the alcoholic solution. After a few minutes immersion the pulp is removed and the excess of the staining liquid is pressed out between sheets of blotting paper as thoroughly as possible. The fibres are then mounted in a drop of water for microscopical examination.

If the removal of the staining solution has not been complete, particles of the dyestuff, which is insoluble in water, may remain distributed in the water used for mounting. Any such particles, however, are readily distinguished from rosin particles owing to their crystalline structure. The particles of rosin, on the other hand, stained a bright, red color, are seen as globules or irregular masses of rounded contour. In most good sulphite pulps these particles will be mainly confined to the interior of the small cells derived from the medullary rays of the wood, and only a few will be seen adhering to the outside of the fibre. With a badly resinous pulp the fibres will show large numbers of red resinous globules attached to their exterior.

In working the pulp in the paper mill, the rosin enclosed in the cells is of no account, but the particles of rosin attached to the outside of the fibres tend to agglomerate together during the beating of the stuff, and to accumulate in bumps more or less large, which give infinite trouble on the paper machine in the form of specks in the paper and in the meshes of the wire.



# The Pulp AND Paper Magazine of Canada

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Vol. 9—No. 8.

TORONTO, AUGUST, 1911

/ Canada \$1 a Year  
(Single Copy 10c.)

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## Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

**Subscriptions:** Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage, \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required, four days earlier. Cuts should be sent by mail, not by express.

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**BIGGAR-WILSON, Ltd.**

**PUBLISHERS.**

Offices, **Confederation Life Building,**  
Toronto, Canada.

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### THE RECIPROCITY SITUATION

One stage of the Reciprocity agony is over, that affecting the fight in the United States. The Senate accepted the measure by a vote of 53 to 27, after voting down sixteen amendments. In Canada the crisis is yet to come, the deep feeling throughout the Dominion against the passage of such an unfair and dangerous agreement having forced the government to appeal to the country. The general elections will take place on the 21st of September, and it is to be hoped that the masses of the people will not be led away by current clap trap about the benefit of enlarged markets or by the plausible argument to "Try it for a year." The

reasons against entangling ourselves in any way with the fiscal policy of the United States are much deeper-seated than this would make them appear, as The Pulp and Paper Magazine has been showing for months past.

We believe that one thing will stand forth clear in the future history relating to this Reciprocity agreement, whether it succeeds in passing into law in both countries or not. That is, the absolutely undemocratic manner in which the attempt was made in both countries to force it down the throats of the two peoples. We are glad to be able to take this opportunity, were any indeed needed, of stating emphatically that in our continuous protests against so-called Reciprocity there is not implied one single atom of enmity towards our neighbors. We oppose Reciprocity not only because it is uncalled for and dangerous to the true development of Canada, but because it is unfair to both countries, the United States as well as Canada, and the pulp and paper schedules are an outstanding example of this injustice. In both countries, equally unconstitutional methods were adopted to force the measure through. In the United States according to the Constitution, the president or executive head of the nation is supposed to be charged with the enforcement of existing laws and to

make suggestions to Congress or the legislative branch. When this particular measure, however, came into the hands of Congress it was already cut and dried and it was accompanied by a presidential command that it would have to be passed, on pain of an extra session. This extra session had to be called and finally President Taft's "command" accompanied by several stump demonstrations on his part, was obeyed. Seldom, if ever, has such an important measure been rushed through with such little opportunity given for the people affected to understand its meaning. In Canada, the attempt to carry the people unheard through a fiscal revolution proved abortive; but this was through no fault of the government which is supposed to represent the nation at Ottawa, whose haste was equally unseemly. Sir Wilfrid Laurier has over and over again claimed that Reciprocity with the United States was a dead issue. Yet he sent the Honorable Messrs. Fielding and Patterson down to Washington, and in a very few days they returned with the proposed agreement neatly tied up in their pockets. And when there is remonstrance, we are told the honor of the country is at stake. At whose mandate did those two gentlemen engage the honor of Canada?

Just a few days ago there arrived word from Washington that one important clause of the Reciprocity bargain was to go into effect at once, and without waiting to see if that bargain would be ratified in this country at all. In fact, it is to go into effect altogether independent of that agreement. We refer of course to the pulp and paper schedule and the present situation is an

apt commentary on two facts for the truth of which we have contended from the beginning. One is that in any event within a short time, the United States would have extended to Canada, for **NO RETURN**, most of the concessions she proposes to give in return for Reciprocity, thus making the agreement but a poor bargain for this country to enter into. The second point is that the United States administration seems to have been willing to sacrifice every principle of fair play at the behest of the newspaper publishers who, while favoring protection for every other industry, wanted free trade for their own because they thought they could obtain their raw material thereby a few cents cheaper.

The "Philadelphia North American" is one of the few refreshing exceptions to the rule that the American newspapers seem to have sacrificed their principles to the lust for gain. In a recent issue it said:—

"The North American, like every other newspaper of large circulation, will be a beneficiary of the measure. But we must repeat what we have said over and over again during the debates in Congress: That merely because we consider honest and equitable reductions of the paper schedules in the tariff, which would save The North American large sums of money every year is no reason why this newspaper should give its endorsement to an agreement which is to our self-interest, but in nearly every other clause a sham and perversion of real reciprocity, and an imposition upon millions of people. And this position we maintain in no holier-than-thou pose of saintly unselfishness, but in our fixed belief that the only permanently prof-

itable way for a newspaper to act with the people is the square deal."

We refer now to the order just issued by the Washington Treasury Department which puts into effect, immediately and without waiting for the Reciprocity measure to come into force, the paper and pulp section, so far as it affects private lands or such Crown lands as are free from restrictions, prohibitions, or charges in the particular section of the law. It provides also that the articles entered after the approval of the act, previously imported, but for which no entry has been made, or under bond for warehousing, transportation or other purposes, for which no permit for delivery has been issued, are subject to the act. It means in other words that wood pulp and paper manufactured from wood cut on private lands or Crown lands in Canada on which there are no restrictions, are now entitled to free entry into the United States. We understand that some pulp has already been contracted for on this basis, and that there is no doubt whatsoever but that it will enter the United States within a few days free of duty.

An affidavit is required of the importer that the articles are the product of Canada. He must also make a declaration that they are not subject to an export duty or export license fee. The State Department will instruct the Consular officers to give specific verification of the exporter's declaration of origin.

The statute applies to wood pulp and paper valued at not more than four cents per pound. The product must, to have free entry, be made from wood cut on lands, private or public, in any

province or territory of Canada, except the public lands of British Columbia, Ontario and Quebec, which provinces prohibited the export of pulpwood from Crown lands. New Brunswick will also restrict export after October 1. That free entry will at once apply to wood cut on private lands in British Columbia, New Brunswick, Ontario and Quebec, and wood cut on the provincial lands of British Columbia lying east of the Cascade range.

Rumors were afloat a few days ago to the effect that Premier Gouin of Quebec was about to bring on the elections in that Province, the idea being not only to show that the people of Quebec at least were ready to stand to their guns in resisting any pressure from the United States to remove the pulpwood restrictions recently enacted by his government, but to strengthen the Laurier government in its forthcoming struggle at the polls. Doubtless further thinking on this part of the subject, however, must have cleared the party leaders from such a strange idea. It is certain that any victory of the Gouin government on such an issue as the conservation of natural resources would have reflected on nothing more adversely than on the Dominion government's Reciprocity bargain. Sir Wilfrid Laurier probably understands this now.



#### A STATESMAN'S MANIFESTO

The Honorable Clifford Sifton, having returned from England, has issued a declaration of his position in the present crisis. In one respect Mr. Sifton's manifesto may be regarded as more important than the declarations

of either of the political party leaders. Mr. Sifton is chairman of the Commission of Conservation, and has definitely devoted himself to the study of the most vital of all problems affecting the material interests of the country—the control and administration of natural resources. A clear thinker and gifted with intuitive insight, he has already given the people reasons for hoping that he will develop a policy by which Canada will profit from the mistakes of other countries in dealing with the nation's raw materials. When he warns the nation of dangers we may be sure that those dangers exist, and are not the illusions of a flighty imagination.

After stating that he would not be a party candidate at the coming elections Honorable Mr. Sifton said:—

"I shall be willing to do anything in my power to assist in the campaign against reciprocity. The view which I have expressed in the House has become stronger as the discussion proceeded."

"What are the principal grounds of your opposition to the treaty?"

"From a business standpoint, the arrangement is, on the whole, injurious. General phrases about larger markets and greater freedom of trade are meaningless without application of the particular conditions of the country. In any arrangement of the kind proposed there will be some benefits and some injuries. I regard the benefits as largely problematical, while the injuries in many cases are certain. Taking the situation as a whole, it appears to me that the disadvantages largely outweigh the advantages.

### Ontario and Quebec.

"To be more specific, take the case of Ontario and Quebec. While there may be opened up a market for a few more or less unimportant products which are not now readily saleable, and while the prices of a few high class products may be temporarily raised, there is an absolute certainty that the market for the great bulk of the staple products of the farm, such as butter, eggs, sheep, hogs, etc., will be flooded from the outside. In addition to this, it is certain that many important industries will be seriously affected."

### Western Wheat.

"What about north-western wheat?"

"The contention that the western wheat grower will get a better price under reciprocity has been pretty well shattered. A leading article in the Manitoba Free Press of the 21st instant, giving a moderate and reasoned statement of the case for the treaty, does not claim that the price will be higher. The article, after pointing out that Great Britain takes only 105,000,000 cwt. of wheat from all countries, and showing that the total western wheat crop may soon reach 400,000,000 bushels, puts the question as follows:—

"The problem before Mr. Borden is to demonstrate how the Canadian producer is to dispose of this volume if he is limited to the Canadian market and the British market."

### Great Britain Fixes Price.

"Is this question satisfactorily answered?"

"I think so. Great Britain settles the price of wheat for three reasons.



She is the largest importer of wheat. She is a free trade country, and she is the world's carrier. She therefore acts as the world's clearing house for a good many commodities. The price in Britain is settled by the world's supply and the world's demand. If the United States should become a wheat importing country and wants fifty millions of bushels it would make not the slightest difference whether she bought it from Canada, Argentine, Egypt or India.

"What the United States absorbed from the world's supply would affect the demand and the price in precisely the same way wherever she might get it. Ten years hence there would not be a market for a single bushel more of Canadian wheat because of wheat being free between Canada and the United States. The ratio of the whole available supply to the whole demand fixes the price in the world's centre of the trade and that in turn regulates later the price in the remotest corner of the earth where there is transportation to take the wheat to the world's market."

#### Another Example.

"Can you put the case a little more concretely?"

"Yes. Suppose next year there is a shortage in the United States of 50 million bushels.

"This shortage in the United States increases the demand upon the world's supply and raises the price at the world's centre of the trade. From there it stiffens the demand and raises the price at all the shipping markets of the world. The United States buys its fifty million bushels wherever it is most convenient, at the market price, enhanced by the United States demand. It

makes not the slightest difference where the wheat is bought. Every primary market in the world gets the benefit of the increased demand and the enhanced price by the shortage in the States.

"Incidentally I may remark that a study of the statistics and the agricultural conditions of the United States does not indicate that she is any nearer to becoming a wheat importing country than she was twenty years ago.

#### Sacrifice Independence.

"But the most serious feature of the arrangement is the sacrifice of our fiscal independence. The more you look at it the more certain does it become that from the moment the treaty takes effect our policy will be controlled by what is done at Washington.

"We are the most independent country in the world; we absolutely control every department of our public administration. Once we put ourselves into a state of dependence upon American markets and American tariffs our freedom is gone. With it goes the main-spring of our national life.

"No intelligent man can deny that the policy followed by the United States in excluding us from her markets in the past has been a prime factor in making Canada a self-reliant and independent country. It was at first a hardship, and there was every excuse for those who sought reciprocity.

#### Advantage with Canada.

Now we have overcome the difficulty and won our way through to independence and prosperity there is no excuse for throwing away the advantages of our position. The true path for Canada is the path she has been following,

a dignified independence in policy and a vigorous development and careful conservation of her own resources. The treaty is the first step towards the exploitation and subordination of Canada."

### Appeals to Liberals.

"Have you any opinion to offer regarding the probable result of the election?"

"No, but I hope and trust that there are a great many thousands of Liberals in Canada who are patriotic enough to put country before party, and stand by our true national interests. Particularly I hope that the thousands of young men who have lately been forming themselves into non-political Canadian clubs for purposes of discussion, will see that the ideals to which they have been working towards are in danger, and will, regardless of party affiliations, throw themselves into the fight. It makes little difference to the future what is the name of the party which is in power for the next five years, but it is of incalculable importance that the true lines of our national development should be firmly and jealously maintained."



### THE COATED PAPER SITUATION

We confess to feeling somewhat surprised to hear rumors of still more factories being organized in this country for the manufacture of coated paper. Already four mills are in operation, besides another in course of erection in Eastern Canada. To be taken into consideration is the new one at Georgetown, whilst extensive additions have been made during the last year or two to those al-

ready in existence. Altogether, it will not be far out to say that the tonnage output of Canadian coated paper mills has about doubled within the last two years; and this is probably a very conservative estimate. The Pulp and Paper Magazine is always glad to see safe progress and legitimate extensions and additions in all branches of the Canadian paper industry, but not when the only probable result is a disorganization of trade though over-competition and cutting of prices which in the end are beneficial to no class in the community. And the ultimate failure which generally ensues is by no means a pleasant advertisement for Canadian manufacturing enterprises.

The case would bear a different aspect were any large quantity of coated papers being imported into the country, which might be displaced by domestic goods, were such to be manufactured. A glance at the Blue-book returns will suffice to dispel any such idea. The clause referring to this class of paper in the Dominion Trade and Navigation returns reads: "Ruled and bordered and coated papers; boxed papers and papeteries." It is a pity that this is not made a little more definite by the powers that be, because with such a wide classification it is impossible to arrive with any degree of exactness at an estimate of what was the proportion of coated papers in the figures given. Taking the figures for the above classes of paper, however, as they appear in the Blue-book, we find that their total importation for the year ended with March 31st last, under the general tariff amounted to \$170,210, and under the preferential tariff to \$51,192, or a grand total of \$221,402. From Belgium, the

value of these papers imported into Canada was \$30,387 and of these it is safe to say that but a small proportion comprised coated papers, most of the imports from that country being glazed and flint papers of a class not made in Canada at all. Of the \$56,000 worth which came from Great Britain probably not more than one-half consisted of coated paper for printing purposes. However, from England there does come some fine coated paper, chiefly for the purpose of printing catalogues descriptive of jewellery, for which a high degree of fineness and finish is required. Even in the case of these it is more than probable that the bulk of them were made in Germany, where they make a specialty of such light weight goods, and that they were shipped by way of England in order to take advantage of the preferential tariff. According to the figures, the United States ships into Canada paper under this schedule to the amount of \$126,254, and a rough estimate of the proportion of coated among this would make it perhaps one-half, practically all the importations from this source being in carload lots for special catalogue purposes. Calculating, therefore, upon a basis of one-half the paper specified being coated, or say \$110,000 worth, the displacement of that, even were the whole amount involved, is scarcely sufficient warrant in our opinion for the constant building of new mills, even with the population of the country increasing as rapidly as it is to-day.



E. Pullan's paper warehouse in Toronto was damaged to the extent of nearly \$4,000 by fire. Partially covered by insurance.

## THE IMPORTUNATE WIDOW IN THE RECIPROCITY PACT.

Here is an Extraordinary Chain of  
Events.

Recall the formal statement of the position of the governments of the United States and Canada when the reciprocity compact was drawn up at Washington. In the joint letter of the Canadian Ministers of Finance and Customs dated at Washington, January 21, 1911, there appears the following paragraph.

"With respect to the discussions that have taken place concerning the duties upon the several grades of pulp, printing paper, etc.—mechanically ground wood pulp, chemical wood pulp, bleached and unbleached, news printing paper and other printing paper and board made from wood pulp, of the value not exceeding four cents per pound at the place of shipment—we note that you desire to provide that such articles from Canada shall be made free of duty in the United States only upon certain conditions respecting the shipment of pulp wood from Canada. It is necessary that we should point out that this is a matter in which we are not in a position to make any agreement. The restrictions at present existing in Canada are of a provincial character. They have been adopted by several of the provinces with regard to what are believed to be provincial interests. We have neither the right nor the desire to interfere with the Provincial authorities in the free exercise of their constitutional powers in the administration of their public lands. The provisions you are proposing to make respecting the conditions upon which these classes

of pulp and paper may be imported into the United States free of duty must necessarily be for the present inoperative. Whether the provincial governments will desire to in any way modify their regulations with a view to securing the free admission of pulp and paper from their provinces into the market of the United States, must be a question for the provincial authorities to decide. In the meantime, the present duties on pulp and paper imported from the United States into Canada will remain. Whenever pulp and paper of the classes already mentioned are admitted into the United States free of duty from all parts of Canada, then similar articles, when imported from the United States, shall be admitted into Canada free of duty."

Then appears the list of articles to be made free and among these are mechanically ground pulp, chemical pulp, news print, paper board, and other papers valued at not more than four cents a pound, with this proviso that the admission of these products free of duty is on condition that no export duty or any export charge in the form of additional licence fees or otherwise, or any restriction of the exportation shall have been imposed upon these products when going into United States from Canada and that this free admission shall not come into effect until United States products of like kind are admitted from all parts of Canada free of duty.

In reply of P. C. Knox, Secretary of State, confirming the terms of the letter of the Canadian representatives there appear these sentences:—

"I take great pleasure in replying that your statement of the proposed ar-

rangement is in accord with my understanding of it. It is a matter of some regret on our part that we have been unable to adjust our differences on the subject of wood pulp, pulp wood, and print paper. We recognize the difficulties to which you refer growing out of the nature of the relation between the Dominion and Provincial Governments and for the present we must be content with the **conditional arrangement** which has been proposed in schedule A attached to your letter."

Is there any possible deduction to be taken from this correspondence other than that the admission of Canadian pulp and paper free of duty would depend as much upon the legislation in the Canadian Parliament as upon that in the United States Congress? and yet we find that already, without awaiting the outcome of the proposed legislation in Canada pulp and paper have been formally admitted into the United States. Were the opponents of this reciprocity compact far wrong when they said that all the commercial advantages incidental to the treaty which the United States required in its own interest to concede to Canada would ultimately be given without any concessions from Canada?

The United States daily press played the part of the importunate widow, and its cry "Avenge me of mine enemy" has brought the judge down in his night gown to appease the outcry. In yielding to the importunity of the widow, Judge Taft has only proved what has been so consistently affirmed in Canada, that the pulp and paper question was a domestic problem, like the milling problem, with which this country had no reason to intermeddle by making the reciprocity agreement.



## HISTORY OF RECIPROCITY.

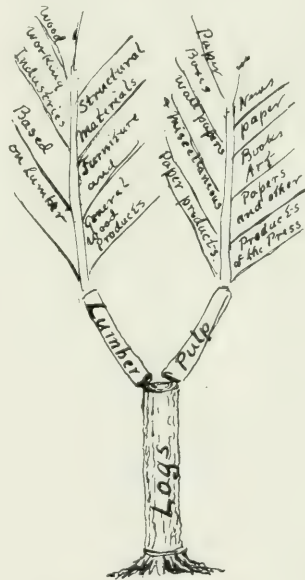
(Continued from last issue).

## Unity of Industrial Processes Illustrated.

Assuming that a reasonable development of factory occupation is necessary for the all-round life of a nation, whose citizens have every variety of taste and inclination, there are cases where the exportation of crude materials is not a thing to be sought after, least of all to be given as a right to a nation under the sanction of a treaty. Take, for example, the case of timber and wood products. Manufactures of wood, as carried on in this country, consist in the main of three elements: first, logs; second, pulp, lumber, etc.; and third, paper and its derivative manufactures, and structural materials, furniture and the great variety of articles made from wood after it passes from the form of lumber. These are three elements, but they are one and indivisible, regarded as a home industry touching the general wants of the people. Logs are not an article of general consumption as such, nor are pulp and lumber till they go through another process and become paper, furniture, etc. It is only then that they first touch the needs of the people at large. Now, it has come about, through the reckless destruction of the forests of the United States, that that country is now short of the raw materials by which its hitherto large foreign trade can be maintained in paper, furniture and the various manufactures derived from wood. If an unlimited supply of raw or semi-manufactured wood, such as lumber and pulp, can be obtained from an outside source, such as Canada, those foreign exports may be maintained and extended. Sup-

pose, then, a trade arrangement is made, under the specific sanction of which such industries are created in the United States in dependence on raw materials from Canada, it must follow that the supply of such materials cannot be suddenly cut off without far-reaching financial losses and industrial disturbance in the United States.

The accompanying conventional tree may illustrate in a simple way the relations of this trinity of industries. Inasmuch as the processes of converting



forests into articles of use for mankind do not bring them into contact with the general consumers till the third stage is reached, and it is in this third stage that by far the greatest amount of capital and labor are employed, the logical purpose of any tariff intended to develop such an industry is to make it a trinity in unity. To sever it in the middle and have the most important processes completed in another country, with this connection maintained at the

hazard of a tariff Act, may sow the seeds of future trouble, where these industries of the two countries are in rivalry in seeking foreign trade. In this particular case we have a forestry problem added to an industrial problem, and the forestry problem is of graver concern than the industrial. The preservation of Canada's water powers by the conservation of its forests is a matter of such consequence that the fate of the woodworking, pulp and paper and all other industries directly concerned in both countries could be completely ignored with less danger to the nation. Within recent years such a flood of light has been thrown on the development or downfall of nations that one states a proved truth and not a prophecy in asserting that the destruction of a country's forests is national suicide. This is realized in the United States, and the problem is giving its statesmen grave concern. But, remembering the parable of the five wise virgins and the five foolish ones, those responsible for the administration of this domain cannot with safety to posterity permit the forests to be swept from the remaining half of the continent because the work of devastation has been so nearly completed in the other half. In such a matter we should look far beyond the needs and dangers of the present generation.

#### **Canada's Separate Destiny.**

No thoughtful Canadian can have reflected upon the history of his country, from the beginning of its colonization by white men till the formation of the Dominion, without recognizing a Controlling Hand that has willed us to be a distinct people. The very history of the birth and dissolution of the reci-

procity treaty here sketched reveals a plan which thwarted our own desires in that generation to make us the separate nation we are now. We now begin to see, dimly as it may be to some, that there are missions Canada can carry out and services to the world she can perform in the spheres of moral, civic and social reform, which can be better effected under our own political organization than any other, and there is ample room on this continent for two sets of experiments in the problems of government, worked out in the spirit of amity which befits nations who are great enough to rejoice in each other's success and happiness. To maintain this free play to our political institutions our fiscal system should be quite as unfettered, and any entanglements which restrict this freedom are more likely to tend towards friction than harmony in the political relations.

#### **Nations Not Great by Trade Alone.**

We have to this point been discussing reciprocity chiefly as an economic question, but a nation cannot become great by trade alone. The history of the rise and fall of empires of the past furnishes too many sad evidences that the nation whose policy is swayed first and last by trade considerations is running its train on to a broken bridge. A certain natural bent of mind makes this a peculiarly dangerous snare to the Anglo-Saxon peoples, and so far have they headed on this moral down grade that it has become almost a heresy to declare it possible for a nation to lose its self-respect through gaining trade advantages. War is one of the retributive calamities begotten of greed of wealth and that lust of dominion into which

greed develops when it has become a national vice. Canada owes, first and foremost, the debt of good will not only to her neighbor and the Mother Country, but to the whole world. If we centre our minds merely on the acquisition of material wealth, forgetting the claims of other nations, who could benefit by a share of the light and blessing we have received, then we fail of the chief source of our future influence on the world. Wheat is not the source of the nation's well-being. If it were, then Babylon, which was the world's first wheat country, would have been a power to-day.\* Like Babylon, the Anglo-Saxon nations devote all their energies to the accumulation of stores of material wealth, and then build Babylonian walls in the form of navies and engines of slaughter with which to protect this wealth. Will Canada place her sole dependence in these Babylonian walls, or will she seek some better way of winning the world's good-will? Taking the estimates for militia and naval service, the cost of the new warships purchased and to be built, the outlays in the Marine and Fisheries Department chargeable to the organization of the naval service, the items in the Public Works Department allotted for the erection and maintenance of armories, military storehouses, etc., we have a total to which the country is committed for war preparations in 1911 of a little over \$22,250,000. In 1880 the amount spent on militia and defense was \$690,-

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\*The first definite notice of wheat is in the writings of Besorus, the priest of Chaldea, who says: "The land of the Babylonians produces wheat as an indigenous plant."

078, in 1900 it was \$1,846,178, and since 1896 \$12,118,150 has been spent in this department chargeable to capital account, or, in other words, added to the public debt. If one-tenth of the amount to which Canada is committed in preparing for war were spent on missions of peace and on educational propaganda to the people of other nations, showing the waste and wickedness of war might it not be the means of avoiding the unspeakable woes now threatening the peace of the world by these unparalleled preparations?

This may be a digression, but it will serve to suggest to those with a mind open to receive it that reciprocity of trade is the least urgent of all the relations which Canada may hold with other nations just now. "Above all nations is humanity," and the reciprocity of good-will is what humanity most needs at a time when millions of the poor of the great nations are literally sinking beneath the burden of taxation for needless war preparations.



In a paragraph in this issue, Mr. Woodruff, of the Lincoln Paper Mills, is reported as crediting to the reciprocity pact the free access of Canadian pulp and paper mills to the United States market. But it will be seen by the information given in this issue that Canadian manufacturers are already enjoying this free access independent of the pact which has not been adopted by the Canadian Parliament. The force of economic conditions, and President Taft's subserviency to the daily press of the United States, and not a treaty which does not exist are the causes of the present situation in the pulp and paper industries.

# Pulp and Newsprint in the United States and Canada

Report of the United States Tariff Board on Costs of Production

(Continued from last issue)

Part IV. of the investigation of the United States Tariff Board on this subject deals with the investigation of the board's agents in Canada. As before mentioned, these figures are based on returns made by thirteen Canadian mills, whose names are not given, and whose location and equipment may not represent the general average of the country.

The schedules received by the board from Canada cover 13 ground-wood pulp mills, producing 305,699.4 tons of pulp, at a total cost of \$2,922,222.99. Of this amount 144,886.7 tons were produced for consumption in the same plant, and were run in "slush" state to the paper mills. Seven plants produced 160,812.7 tons in "lapped," or pressed condition, for sale on the market as ground-wood pulp. Schedules were secured from five sulphite pulp mills producing 75,588 tons of fibre at a total cost of \$1,999,860.51.

Reports were secured from seven news-print paper mills carrying 159,-

437.6 tons of paper, produced at a total cost of \$4,389,567.18.

In most instances the Canadian schedules covered a year's business for the mill reporting, but in some cases the schedule period was for less than a year, and in these cases the data were reduced to a 12-month basis for purposes of uniformity. The relative importance of the schedules thus scaled up to a 12-month period was slight, only small mills being affected.

Tables embodying the information for Canadian mills have been revised to include new schedules received since the publication of the first report. Certain errors, not important in themselves, crept into the former statement owing to the fact that some of the Canadian data used were received only a few hours before the completion of the first report. These tables as revised are presented here consecutively to make possible a discussion of the facts they contain in a single statement. These tables correspond in form and matter with those prepared for the mills in the United States.

**Table 8.—Summary of the cost of manufacture of ground-wood pulp, sulphite fibre, and news-print paper, showing total cost, highest, lowest, and average cost per ton of product, by specified items of cost, for mills in Canada reporting data.**

Items.		Range of cost per ton of products.			
Ground-wood pulp: *		Total cost.	Lowest.	Highest.	Av'ge.
Slush pulp—					
Wood	.....	\$848,367 03	\$4 69	\$9 62	\$5 86
Labor	.....	228,026 00	1 11	2 18	1 57
Other costs	.....	229,017 10	76	2 29	1 58
Total	.....	1,305,410 13	7 37	13 98	9 01



## Finished pulp—

Wood .....	895,107 51	4 26	6 99	5 56
Labor .....	290,468 14	1 55	2 20	1 86
Other costs .....	422,237 21	2 01	3 68	2 63
Total cost in bulk at works.....	1,616,812 86	8 96	10 93	10 95

## Slush and finished combined:

Wood .....	1,743,474 54	4 26	9 62	5 70
Manufacturing labor .....	527,404 14	1 11	2 20	1 73
Other costs .....	651,254 31	7 6	3 68	2 13
Total .....	2,922,222 99	7 37	13 98	9 56

## Sulphite fibre:†

Wood .....	\$991,566 18	\$11 75	\$19 66	\$13 13
Labor .....	242,986 21	1 86	4 71	3 21
Other costs .....	765,398 12	8 47	12 23	10 13
Total cost in bulk at works....	1,999,860 51	24 02	33 84	26 47

## News-print paper:‡

## Materials—

Ground-wood pulp .....	1,354,044 98	6 16	9 93	8 49
Sulphite pulp .....	1,180,688 88	5 28	9 29	7 41
Other materials .....	157,170 27	61	4 03	99
Total materials .....	2,691,904 12	13 10	19 55	16 89
Manufacturing labor .....	508,387 75	2 72	3 59	3 19
Other costs .....	1,189,275 31	6 31	9 46	7 45
Total cost in bulk at works.....	4,389,567 18	24 97	30 18	27 53

\*For mills having 2 per cent. of the total tonnage, data were secured for nine months only, and for mills having 23 per cent. of the total tonnage data were secured for a shorter period. These mills have been raised to a 12-month basis.

†For mills having 45 per cent. of the total tonnage, data were secured for nine months only. These mills have been raised to a 12-month basis.

‡For mills having 2 per cent. of the total tonnage, data were secured for nine months only, and for mills having 13 per cent. of the total tonnage, data were secured for a shorter period. These mills have been raised to a 12-month basis.

**Table 9.—Cost of production of ground-wood pulp, sulphite fibre, and news-print paper in Canada, by classified rates of cost per ton for mills reporting data.**

Cost per Ton.	Number of estab-lish-ments.	Total tons produced.	Per cent. of total tons pro-duced.	Av'ge. cost per tons pro-duced.
Ground wood: *				
Slush pulp—				
\$7 and under \$9.....	2	52,116.0	36.0	\$ 7 65
\$9 and under \$10.....	2	68,904.0	47.6	9 54
\$10 and under \$12.....	1	21,420.0	14.8	10 04
\$12 and under \$14.....	1	2,446.7	1.7	13 98
Total .....	6	144,886.7	100.0	9 01

## Finished pulp—

\$7 and under \$9.....	1	26,248.0	16.3	8 96
\$9 and under \$10.....	3	36,720.0	22.8	9 44
\$10 and under \$12.....	3	97,844.7	60.9	10 58
Total .....	7	160,812.7	100.0	10 05

## Slush and finished pulp—

\$7 and under \$9.....	3	78,364.0	25.6	8 08
\$9 and under \$10.....	5	105,624.0	34.6	9 51
\$10 and under \$12.....	4	119,264.7	39.0	10 48
\$12 or over .....	1	2,446.7	.8	13 98
Total .....	13	305,699.4	100.0	9 56

## Sulphite pulp: †

\$24 and under \$26.....	3	41,596.0	55.0	24 54
\$26 and under \$30.....	1	27,821.0	36.8	27 69
\$32 and under \$34.....	1	6,171.0	8.2	33 84
Total .....	5	75,588.0	100.0	26 47

## News-print paper: ‡

Under \$25 .....	1	6,962.4	4.4	24 97
\$25 and under \$30.....	5	123,935.3	77.7	27 03
\$30 or over .....	1	28,539.9	17.9	30 13
Total .....	7	159,437.6	100.0	27 53

\*For mills having 2 per cent. of the total tonnage, data were secured for 9 months only, and for mills having 23 per cent. of the total tonnage data were secured for a shorter period. These mills have been raised to a 12-month basis.

†For mills having 45 per cent. of the total tonnage, data were secured for 9 months only. These mills have been raised to a 12-month basis.

‡For mills having 2 per cent. of the total tonnage, data were secured for 9 months only, and for mills having 13 per cent. of the total tonnage, data were secured for a shorter period. These mills have been raised to a 12-month basis.

**Table 10.—Manufacturing labor cost per ton of ground-wood pulp, sulphite fibre, and news-print paper, by classified rates for mills in Canada reporting data.**

Labor cost per ton of product.	Number of estab- lish- ments.	Tons pro- duced.	Per cent. of total tons pro- duced.	Av'ge cost per ton.
Ground-wood pulp: *				
Slush pulp—				
\$1 and under \$1.50.....	2	71,616.0	49.4	\$ 1 33
\$1.50 and under \$2.....	3	70,824.0	48.9	1 80
\$2 and under \$2.50.....	1	2,446.7	1.7	2 18
Total .....	6	144,886.7	100.0	1 57
Finished pulp—				
\$1.50 and under \$2.....	4	81,060.0	50.4	1 62
\$2 and under \$2.50.....	3	79,743.7	49.6	2 11
Total .....	7	160,812.7	100.0	1 86

## Slush and finished combined

\$1 and under \$1.50.....	2	71,616.0	23.4	1 33
\$1.50 and under \$2.....	7	151,893.0	49.7	1 70
\$2 and under \$2.50.....	4	82,190.4	26.0	2 11
Total .....	13	305,699.4	100.0	1 73

## Sulphite fibre: †

Under \$2.50 .....	1	6,250.0	8.3	1 86
\$2.50 and under \$3.....	1	24,636.0	32.6	2 92
\$3 and under \$3.50.....	2	35,531.0	51.0	3 38
\$4.50 and under \$5.....	1	6,171.0	8.1	4 71
Total .....	5	75,588.0	100.0	3 21

## News-print paper: ‡

Under \$3 .....	5	87,185.6	54.7	2 95
\$3 and under \$3.50.....	1	15,000.0	9.4	3 04
\$3.50 and under \$4.....	1	57,252.0	35.9	3 59
Total .....	7	159,437.6	100.0	3 19

\*For mills having 2 per cent. of the total tonnage, data were secured for 9 months only, and for mills having 23 per cent. of the total tonnage, data were secured for a shorter period. These mills have been raised to a 12-month basis.

†For mills having 45 per cent. of the total tonnage, data were secured for 9 months only. These mills have been raised to a 12-month basis.

‡For mills having 2 per cent. of the total tonnage, data were secured for 9 months only, and for mills having 13 per cent. of the total tonnage, data were secured for a shorter period. These mills have been raised to a 12-month basis.

**Cost of Ground-wood.**

In the discussion of costs which follows, the total costs aside from material have been termed conversion costs, though the minor items of taxes and insurance, which are not strictly conversion costs, are included under this heading.

In Canada the distinction between slushed and finished pulp is so important that the data have been segregated upon this basis. Slush pulp is used where made, and cannot be exported or sold as such. Hence, for purposes of ascertaining and comparing the cost of Canadian pulp as a marketable commodity, purchasable in this country with domestic pulp, it is necessary to consider finished pulp as a separate proposition.

The tables show that 166,812.7 tons of finished marketable pulp were produced in seven establishments at a total cost of \$1,616,812.86, or an

average of \$10.05 per ton, though 60.9 per cent. of it was produced at an average cost of \$10.58 per ton and 16.3 per cent. at the lowest cost of \$8.96. Slushed pulp for use in the mills where made was produced at an average of \$9.01, or \$1.04 per ton less on the average than finished pulp. Taking all ground-wood pulp produced, we have a tonnage of 305,699.4, at a total average cost of \$9.56 per ton, with a highest total cost of \$13.98 and a lowest of \$7.37. The lowest cost for wood per ton of pulp was \$4.26 and the highest \$7.62, with an average of \$5.70, making the total conversion costs only for ground-wood pulp in Canada \$3.86 per ton, as against \$4.36 in the United States. The significance of the range in total cost is brought out in Table 9, which shows 25.6 per cent. produced at an average of \$8.08, 34.6 per cent. at an average of \$9.51, while 39 per cent., or 119,264.7 tons, were produced at an average total cost of \$10.48.

## Comparison of Costs, United States and Canada.

Coming now to the matter of comparison of costs for ground-wood pulp, sulphite fibre, and news-print paper between the United States and Canada, the elements of such costs are brought together in the following table:—

**Table 11.—Summary of the cost of ground-wood pulp, sulphite fibre, and news-print paper, showing lowest, highest and average cost per ton of product, by specified items of cost for mills, in the United States and Canada reporting data.**

ITEMS.	Lowest cost per ton of product.		Highest cost per ton of product.		Average cost per ton of product.	
	United States.	Canada.	United States.	Canada.	United States.	Canada.
<b>Ground-wood pulp:</b>						
Wood .....	\$6 90	+ \$4 26	\$13 33	+ \$9 62	\$10 23	+ \$5 70
Manufacturing labor .....	98	+ 1 11	5 90	+ 2 29	2 18	+ 1 73
Other costs .....	30	+ 76	6 83	+ 3 68	2 18	+ 2 13
Total cost in bulk at works....	\$9 86	+ \$7 37	\$21 32	+ \$13 98	\$14 59	+ \$9 56
<b>Sulphite fibre:</b>						
Wood .....	13 28	+ 11 75	25 89	+ 19 66	18 58	+ 13 13
Manufacturing labor .....	2 09	+ 1 86	6 51	+ 4 71	3 84	+ 3 21
Other costs .....	6 72	+ 8 47	14 68	+ 12 23	9 57	+ 10 13
Total cost in bulk at works....	\$24 47	+ \$24 02	\$40 16	+ \$33 84	\$31 99	+ \$26 47
<b>News-print paper:</b>						
Ground-wood pulp .....	8 26	% 6 16	18 54	% 9 93	13 27	% 8 49
Sulphite fibre .....	6 45	% 5 28	14 12	% 9 29	8 63	% 7 41
Other materials .....	32	% 61	3 25	% 4 03	84	% 99
Total materials .....	\$14 64	% \$13 10	\$20 22	% \$19 55	\$22 74	% \$16 89
Manufacturing labor .....	2 19	% 2 72	7 26	% 3 59	3 27	% 3 19
Other costs .....	4 63	% 6 31	10 05	% 9 46	6 87	% 7 45
Total cost in bulk at works....	\$24 50	% \$24 07	\$43 00	% \$30 18	\$32 88	% \$27 53



The cost of manufacturing labor was, when averaged over the whole production, \$1.73 per ton of pulp, the range being from \$1.11 to \$2.29. Two plants produced 23.4 per cent. of the reported tonnage at an average manufacturing labor cost of \$1.33 per ton, seven establishments produced 49.7 per cent. at an average of \$1.70, while four establishments produced 26.9 per cent. at an average of \$2.11. The highest group was, therefore, 7 cents lower in their manufacturing labor cost than the average for all mills in the United States.

### Cost of Sulphite Fibre.

The tables of cost of sulphite pulp in Canada cover a production of 75,588 tons, manufactured at a total cost of \$1,999,860.51; or an average of \$26.47 per ton. The lowest cost is \$24.02 and the highest \$33.84. The volume of production at the highest rate is small,

being 6,171 tons, or 8.2 per cent. of the total tonnage reported, while 55 per cent. of the reported production is at an average of 24.54, and 36.8 per cent. was produced at an average of \$27.69. The cost of the wood as a raw material was \$13.13 per ton of pulp on the average, with a lowest and highest ranging from \$11.75 to \$19.66 per ton. Deducting the wood, there remains \$13.44 as the cost of conversion, if sulphur, which is a conversion material, be included. On the same basis, deducting wood, the conversion cost in the United States on the average is \$13.41, or 3 cents per ton less than in Canada, although the average manufacturing labor cost shows 63 cents per ton higher in the United States than in Canada.

The manufacturing labor cost in sulphite ranges from \$1.86 to \$4.71 per ton, with an average of \$3.21. One plant operates at the lowest labor cost, and it produces 8.3 per cent. of the re-

\*The present tables of highest and lowest cost per ton of product for the United States and Canada show certain apparent discrepancies as compared with the tables printed in the preliminary report. These discrepancies may need explanation.

Where the lowest given in the present table is lower than that as previously published, or the highest figure in the present report is higher than that previously published, this is naturally accounted for by the inclusion in the present report of mills which had not been reported at the time of the previous publication.

In some cases, however, the figures as now printed give as the lowest a figure higher than the previous lowest, or a highest cost lower than the previous highest cost. This may be accounted for in various ways. For instance, in the column for news-print paper, the lowest cost per ton of paper now appears slightly higher for both ground-wood pulp and sulphite pulp in the United States, the reason being that in the new tabulation the figures were revised on an absolutely uniform basis, and in this particular case the company had charged all of its overhead expenses to the cost of the paper alone and none to its pulp plants. This overhead expense was distributed over three plants, thus raising the amount for pulp and reducing the item of other costs on the paper.

In the highest cost per ton of product for the United States in the case of ground-wood pulp, the former figure of \$15.01 has been reduced to \$13.33. This is accounted for by the fact that the report from the mill in question showed an amount of pulp entirely impossible in relation to the amount of wood charged in. In this case they were credited with an additional amount of pulp, thereby reducing the cost of wood per ton of pulp.

Similar readjustments have been made in some cases for Canadian mills, which accounts for certain similar changes in the Canadian column. In the preliminary report, because of the fact that adequate time was not allowed for a minute examination of Canadian figures, some figures were included which for the extreme "high" and "low" needed careful revision. In one case there was an actual misprint. Under the head of "News-print paper," the lowest Canadian cost for sulphite pulp per ton of paper was given as \$3.71. This appears correctly in the new table as \$5.28.

† For mills having 2 per cent. of the total tonnage, data were received for 9 months only. For mills having 23 per cent. of total tonnage, data were received for a shorter period. These mills have been raised to a 12-month basis.

‡ For mills having 45 per cent. of the total tonnage, data were secured for 9 months only. These mills have been raised to a 12-month basis.

§ For mills having 2 per cent. of total tonnage, data were secured for 9 months only. For mills having 13 per cent. of total tonnage, data were secured for a shorter period. These mills have been raised to a 12-month basis.

ported tonnage. Fifty-one per cent. is produced at an average of \$3.38 per ton for manufacturing labor, while 8.1 per cent. is produced at the highest reported cost of \$4.71.

#### Cost of News-print Paper.

The seven news-print paper establishments from which reports were secured produced 159,437.6 tons of news-print paper at a cost of \$4,389,567.18, or an average of \$27.53 per ton. The range is from \$24.97 as lowest to \$30.18 as highest cost. A very small percentage—4.4 per cent.—was produced at the lowest cost, while 17.9 per cent. was produced at the highest, leaving five establishments producing 123,935.3 tons, or 77.7 per cent., at an average of \$27.06. Stock materials averaged \$16.89 per ton, leaving \$10.65 as the conversion cost for paper in Canada as against \$10.14 as a total conversion cost of paper (excluding stock materials) in the United States, on the average a difference of 51 cents per ton in favor of the United States. The cost of stock materials in the United States averaged \$22.74 per ton of paper for all mills reporting, a difference of \$5.85 per ton of paper in favor of Canadian mills.

Manufacturing labor costs range from \$2.72 to \$3.59 per ton of paper, with an average for the whole of \$3.19. Five establishments, producing 54.7 per cent. of the tonnage, did so at an average cost for manufacturing labor of \$2.95, while 35.9 per cent. of the tonnage carried a manufacturing labor cost of \$3.59.

Some discussion of its findings has been had incidental to the other Canadian tables, so that no more than a summary seems necessary here. Ignoring the highest and lowest, the significance of which can be determined by reference to the classified cost tables for both countries, the total average costs for the two countries present some interesting comparisons. The first thing that seems significant is that the difference in cost of wood per ton of pulp is

practically the difference in the total cost. For instance, in ground-wood pulp the total cost is \$14.59 for the United States and \$9.56 for Canada, a difference of \$5.03. The cost of the wood as raw material per ton of product is \$10.23 for the United States and \$5.70 for Canada, a difference of \$4.53, which, deducted from the total difference of \$5.03, leaves a difference of 50 cents per ton in favor of Canada, 44 cents of this being in the item of manufacturing labor cost.

The Canadian average cost for sulphite was \$26.47, the average for the United States mills reporting was \$31.99, a difference of \$5.52, of which \$5.45 is absorbed by the difference in cost of wood as a raw material, leaving a net difference of but six cents per ton, although the difference in labor cost is 63 cents per ton in favor of Canada.

In news-print paper the effect of wood cost is not so clear, because here the raw material is pulp and not wood, but if we take 80 per cent. of the difference we find in the wood cost in ground-wood pulp, and 20 per cent. of the difference in case of sulphite pulp, we have \$4.71 as the amount of the difference in the cost of news-print paper in the two countries, which is due to the difference in wood costs.

The average cost of production of news-print in Canada is \$27.53 per ton, in the United States \$32.88. The difference is \$5.35, of which \$4.71 is accounted for by difference in cost of wood as raw material in the pulp, leaving a difference of 64 cents, only 8 cents of which is covered by the difference in manufacturing labor.

To Be Continued.



The Twitchele Company, Ottawa, are negotiating for the purchase of the Scott Company's mills and timber areas near Fredericton, N.B. If successful they contemplate erecting pulp and paper mills.

## Montreal Pulp and Paper News

*Special to the Pulp and Paper Magazine.*

Montreal, Aug. 3, 1911.

Not a little interest is being displayed in local pulp and paper circles, in the announcement which appeared about the time President Taft signed the reciprocity agreement, to the effect that the duty in the United States against pulp and paper from Canada would be immediately cancelled where no export disability exists in Canada against these goods. This whole pulp and paper arrangement between Canada and the United States has now reached a place where it is very difficult for anyone to know just exactly how the situation stands. As far as can be ascertained, however, from well informed circles in Montreal this cancellation of duty under certain conditions is in reality not a part of the reciprocity treaty at all, but is a special provision made by the United States in order that pulp and paper may be obtained more cheaply in that country. The President was therefore able to put the new law into effect without having to wait until the reciprocity arrangement was accepted by the Canadian parliament.

At the present time the duty levied by the United States on newspaper imported from Canada, made from wood cut on Crown Lands in the province of Quebec, is \$3.75 per ton. In addition to this the United States imposes a penalty of \$2 per ton against newspaper made from wood grown on crown lands. A duty of 1-12 cent per pound, or \$1.66 per ton, is levied against ground wood pulp, or mechanical pulp, if made from Crown Lands wood, but when this pulp is made from wood cut on private lands it enters the United States duty free. Newspaper also, which is made from wood cut on private lands now enters the United States free. This, it is claimed, is much the situation which existed under the Payne-Aldrich tariff.

Chemical pulp wood, such as sulphite, soda and kraft, pays a duty of 1-6 cent per pound if made from wood cut on Crown Lands. Bleached pulp pays  $\frac{1}{4}$  cent per pound. This is also free if made of wood cut from private lands.

If any of the above articles are made partly from one and partly from the other description of wood, the duties shall be levied according to the proportion of the wood of either description entering into the product.

It may easily be seen that the action of the United States government is distinctly favorable to the wood grown on private lands, the reason of this being of course that Quebec and several other provinces have placed restrictions upon the export of pulp wood grown on Crown Lands, whereas, when the wood is grown on private lands, it is not affected. The admission into the United States, duty free, of pulp and paper made from wood grown on private lands will naturally be relished by those who own their own timber lands.

A division of opinion seems to exist respecting the effect these new arrangements will have upon prices. Some are disposed to think that with this handicap in their favor, the owners of private lands will under-sell their competitors who have to take their wood from Crown Lands. Others, however, hold the view that this will not be the case, but that the price will be maintained, the owners of private lands putting the difference in their pockets. It is stated also that, for the most part, the private lands are not nearly so well situated for operating and shipping as the Crown Lands. The latter, it would seem, are practically all in well watered country, and located along large broad streams down which the wood can be floated to the mills and the pro-

duct shipped out at the least possible cost to the consumer wherever he may be. Private lands, on the other hand, are the least desirable from the standpoint mentioned, so that the owners lose much of the advantage which their preferential treatment in the American market will give them. In a great many cases, also, the owner of Crown Lands is the owner of private lands as well, in which case he would make use of the most advantageous wood. In other instances, the owners of Crown Lands will purchase wood from private lands. The tendency all the way round will be to put wood or pulp from private lands to a premium, inasmuch as the pulp or the paper can be sent into the United States so much cheaper than if it originated on Crown Lands. Private lands wood has already advanced considerably in price.

It would seem that to all intents and purposes, so far as exports from here to the United States are concerned, the conditions of reciprocity already apply. Under reciprocity, of course, imports of pulp and paper from the United States to Canada come in free, while the absolute freedom of the entry of all Canadian pulp and paper into the United States, from any particular province, is dependent upon whether or not an export tax of any nature exists in that particular province against the article under consideration. The object of this arrangement by the United States would consequently be to tempt the lease holders of Quebec Crown Lands to urge the Provincial government to remove any restrictions against the export of wood cut on Crown Lands. A number of problems are thus introduced by these various provisions, and the situation is in the meantime, not a little complicated. Just how the matter will work out is impossible to say at the present moment but, so far, the private lands wood certainly gets the best of it.

In respect to the foregoing, one large pulp and paper man in Montreal referred to the export of pulp wood from Can-

ada. Altogether during the year 1909—which apparently was the last year for which statistics were available, 622,129 cords of pulp wood were used in Canada, the value of this being \$3,446,080. at the mill. The value of the wood increased more than \$550,000 over that used in 1908, the quantity showing an increase of thirty per cent. There are some sixty pulp mills in the Dominion, twenty-five of these being in the province of Quebec and one-fifth being in Ontario. The province of Quebec furnishes over half the pulp wood, and Ontario about one-third; 99 per cent. of the wood used in making paper consists of spruce and balsam and three-fifths of the pulp wood cut in Canada is exported to the United States. The average price in 1909 was 49 cents more than was paid at the Quebec mills.

The daily output of the twenty-five pulp mills in the province of Quebec aggregates 2,839,000 pounds of pulp.

At the beginning of the year it was reported that there were twenty paper mills, and the number of pounds of paper manufactured daily averaged 1,343,000. The cost of turning a cord of pulp wood into pulp was reported at \$12.59, the wood costing \$6.39, wages amounting to \$3, and other expenses to \$3.20. The cost of manufacturing a ton of paper from pulp wood based on a price of \$34.25 is \$7.25 for the wood. \$11.75 for salaries and \$15.25 for other expenses. The average yearly export of pulp wood from the province for five years from patented lands was 480,000 cords.

The Eastern Canada Paper & Pulp Company is increasing its capital to \$15,000,000 and application has been made to list the stock on the Paris Bourse. This company is to be organized immediately into a huge holding corporation, for the purpose of buying up several large paper and pulp concerns which are now in operation in this country. It is stated that the syndicate behind the Eastern Canada



Paper & Pulp Company has already secured an interest in at least three paper and pulp concerns and the new capital will largely be used in the purchase of these industries. President Rodolphe Forget, M.P. of the Eastern Canada Company, confirmed the report of the proposed increase of capitalization and of the decision to list the stock in Paris. He was not prepared, however, to discuss his arrangements regarding the enlargements of the company, but the "Street" is expecting a big move that will mean one of the largest pulp and paper companies on the continent.

Plans for the large fire-proof building to be partly erected during the summer, at the corner of St. Alexander and La-gauchetiere Streets, have been prepared by Messrs. Ross & Macfarlane, the Montreal architects for Messrs. J. C. Wilson & Company, Limited, paper manufacturers, 242 Craig Street, West. In speaking of the paper company's new building, Mr. Howard Wilson said that as the land upon which the building would be erected had only recently been purchased details as to the construction of the building were still unattainable. "It will be fireproof anyway," said Mr. Wilson. He said that they looked forward to occupying their new building on the first of January, 1913, and that work would be started as soon as the architects had completed their plans.



### THE PULP AND NEWS PRINT REGULATIONS.

Assistant Secretary of the Treasury Curtis has issued the customs regulations which are to govern the importation of wood pulp and print paper from Canada under the reciprocity agreement with the United States. These regulations are as follows:—

To Collectors and other officers of the Customs—

1. Section of an act entitled "An Act to Promote Reciprocal Trade Relations

with the Dominion of Canada and for Other Purposes" is as follows:—

"Section 2. Pulp of wood mechanically ground, pulp of wood, chemical, bleached, or unbleached; news print paper and other paper, and paper board manufactured from the mechanical wood pulp or from chemical wood pulp, or of which such pulp is the component material of chief value, colored in the pulp, or not colored, and valued at not more than four cents per pound, not including printed or decorated wall paper, being the products of Canada, when imported therefrom directly into the United States, shall be admitted free of duty, on the condition precedent that no export duty, license fee, or other export charge of any kind whatsoever (whether in the form of additional charge or license fee or otherwise), or any prohibition or restriction in any way or the exportation (whether by law, order, regulation, contractual relation or otherwise directly or indirectly), shall have been imposed upon such paper, board or wood pulp or the wood used in the manufacture of such paper, board or wood pulp, or the wood pulp used in the manufacture of such paper or board."

2. The provisions of the section above quoted took effect immediately on approval of the act.

3. Articles entered on and after the taking effect thereof and articles previously imported but for which no entry had been made and articles previously entered without the payment of duty and under bond for warehousing, transportation or any other purpose for which no permit of delivery to the importer or his agent had been issued, are subject to the provisions of the said section.

4. In order to be entitled to the benefits of said section 2, articles must be entered subject to the following provisions:—

(a) The exporter must declare on the voice that the articles are the product of Canada and that their exportation is not subject to any "export duty, ex-

port license fee or other export charge of any kind whatsoever (whether in the form of additional charge or license fee or otherwise), or any prohibition or restriction in any way of the exportation (whether by law, order, regulation, contractual relation or otherwise, directly or indirectly).

(b) The importer must make affidavit at the time of entry that the articles were produced in and exported directly from Canada.

(c) The appraiser must be satisfied and so report on examination that the articles are the product of Canada.

(d) The collector must be satisfied that the articles are the product of and direct importations from Canada, and that their exportation is not subject to any of the prohibitions, restrictions or charges set forth in the said section 2.

5 The Secretary of State has been requested to instruct consular officers in Canada to add to their usual certificate on invoices a specific verification of the exporters' declarations of origin.

6. Under the provisions of said section 2 there will be admitted free of duty at the present time only such of the articles specified therein as are produced from wood cut on private lands, or on such Crown lands as are free from the restrictions, prohibitions or charges set forth in the said section.

7. Subject to compliance with the regulations herein set forth free entry will be granted to wood pulp, paper and paper board valued at not more than 4 cents per pound, manufactured from:

(a) Wood cut on any lands, public or private, in any of the provinces or territories of the Dominion of Canada, except the provinces of British Columbia, Ontario and Quebec. This will only include the province of New Brunswick until after October 1, 1911.

(b) Wood cut on private lands in the provinces of British Columbia, New Brunswick, Ontario and Quebec.

(c) Wood cut on the provincial lands of the province of British Columbia, lying east of the Cascade range of mountains.

8. Free entry will be denied to such wood pulp, paper and paper board manufactured from;

(a) Wood cut on the Crown lands of the provinces of Ontario and Quebec or on the provincial lands of the province of British Columbia lying west of the Cascade range of mountains, or on the Crown lands of the province of New Brunswick on and after October 1, 1911.

9. Printing paper valued at 3 cents per pound or less, and wood pulp, which are the products of wood cut on the lands set forth in paragraph 8, will be subject to the countervailing provisions of paragraphs 409 and 406, respectively, of the tariff act of August 5, 1909.

10. News print paper, valued at more than 3 cents per pound, and not more than 4 cents per pound, and paper other than news print paper and paper board manufactured from wood pulp or of which such pulp is the component material of chief value, valued at not more than 4 cents per pound, not including printed or decorated wall paper, which are the products of wood cut on the lands set forth in paragraph 8, will not be subject to the countervailing duties provided in paragraph 409, but will be subject to the regular duties only provided in said paragraph.

11. Such news print paper and other paper and paper board valued at more than 4 cents per pound are not affected by this act, but remain dutiable under the appropriate provisions of the act of August 5, 1909.

12. The Dominion of Canada does not include the province of Newfoundland nor the territory of Labrador.



C. Jackson Booth, son of J. R. Booth, the veteran Ottawa pulp and paper manufacturer, has been requested to stand as Conservative candidate at the forthcoming general elections, but would not accede owing to pressure of his business.

## Literary Notes.

We would warmly commend to our readers interested in politics—and who is there who ought not to be concerned in the movements that are making for his country's moral growth or decay?—a book just issued by the Oxford University Press, Toronto and New York, under the title of, "The New Politics." The author, Dr. Frank B. Vrooman, F.R.G.S., who is well known in Canada, and will be much better known soon by reason of his extensive investigation of conditions in the western provinces, addresses himself to the young men of both Great Britain and the United States. He warns them in the preface that there is something fundamentally wrong in the civilization into which we of this generation are born, and he puts his finger upon some of the sore spots in the course of the volume. If we do not make it right now it never will be righted, for, as he says, "something is being crystallized in the social melting pot and soon will be precipitated once for all." In one of his chapters he asks, concerning the situation in America, "Is there enough moral fibre among us to shift the foundations of American politics from interests to principles? Are we capable of rising above the plane of profit and loss?" It is time we ceased to talk of our "rights" and began to think of "duties." "We have, for the most part, the tragedy of the frank avowal of a life philosophy which faces the universe and attempts its riddles upon the simple proposition: 'What is there in it for me?'"

"That which the Americans have been taught to look upon as our peculiar blessing may prove to be our special curse. Our nation was born and, as it were, baptized in the flood-tide of eighteenth century individualism, and we have made the awful mistake of basing a permanent philosophy upon a transitory idea. To this fact we owe the dreary wastes of our first three-quarters of a century of history, our civil war, and

the despotism of modern financialism, i.e., to a set of ideas under which might becomes right and the big eat the little." Some of the coming trials of the American Republic are clearly foreseen by the author, and as it is better to be wise by others' follies than by our own, these problems should be closely studied by all Canadians who do not wish to be burnt out by a next-door neighbor's conflagration.

\* \* \*

"The Paper Makers' Directory of All Nations" for 1911 has come to hand. The system of classification adopted last year, that is, in connection with the grouping together of the various mill productions in one list at the end of the book, is again in evidence. The productions of each mill, as disclosed in the mill entries being arranged alphabetically, first, according to the goods purchased, and secondly, according to country. Much extra information will be found in the names, addresses, makes of paper, number and width of machines, tonnage capacity, power used, agents and telegraphic addresses and so forth. Particular attention is drawn to the "Classified Index to Commercial Prospectuses," a buyers' guide of representative names in the paper and allied trades. This cannot fail to prove useful to managers and owners of paper, pulp or board mills as it enables them to get into touch with other branches of the trade in which, on occasion, they may be interested. The Directory is well bound in red cloth, and sells for 10s. 6d. net. Publishers are Dean & Son, Limited, 100a Fleet Street, London, E.C.

\* \* \*

"Phillips' Paper Trade Directory of the world" for 1911 has now made its appearance and is as complete as ever, under the new system of arrangement introduced last year and which seems

to be giving general satisfaction. Since that edition, however, there have been a great many additions and alterations, probably more than in any of its predecessors. This is only an indication of the changes and developments which have taken place in the paper making and allied trades in many parts of the world. As before, the principal features of this valuable directory may be summarized as follows: Paper mills of the world, in alphabetical and numerical order; pulp mills of the world; lists of buyers of paper; boards and stationery throughout the world; also of millboard makers, enamelers, paper stainers, paper agents, export paper shippers, paper stock merchants, wholesale stationers, and paper box and bag makers, registered watermarks, etc. The book is published by S. C. Phillips & Company, of "The Paper Maker," 47 Cannon Street, London, E.C. Price 15s.

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Jens Orten-Böving, M.I.M.E., Union Court, Old Broad Street, London, E.C., sends us a copy of his pamphlet entitled "Some Short Notes on the Production of Mechanical Wood Pulp." They are written more with a view to conveying information about the manufacture of groundwood pulp to the layman rather than to furnish anything new to the specialist or expert pulp manufacturer. For the former purpose the book is admirably adapted, and anybody wishing to learn the general principles of the pulp industry would do well to get a copy. The Canadian Böving Company, Limited, manufacturers of pulp and paper machinery, have an office in Toronto at 164 Bay Street.



#### MANUFACTURING CONDITIONS FOR FINE PAPER IN U.S.

Arthur C. Hastings, President of the American Paper and Pulp Association, New York, recently issued a booklet defending the American Writing Paper Company against the charges of long

and arduous hours prevailing in Holyoke mills, and incidentally giving some facts which should be better known concerning the conditions under which the manufacture of fine paper is carried on. Speaking of the twenty-seven companies in New England making fine writing, ledger and bond papers and specialties, and having a total capacity of about 450 tons per day, the booklet says:—

These mills are all operated on what is known as the two tour system in contradistinction to the three tour system employed in 20 of the news and book mills in the East. The hours of the Eastern mills on the two tour basis are as follows: beginning at seven o'clock Monday morning the day tour works from seven a.m. to six p.m., with one hour for dinner until Saturday, when the mill shuts down for Sunday at about five o'clock. The night tour operates five nights in the week, from six p.m. to seven a.m. There is, however, one hour taken in the night for lunch. The men are paid for the five night shifts or tours as much as the day men receive for their work,—the five nights being supposed to equal six days and alternate each week so that the night tour man of one week is the day tour man of the next week. Thus the day tour men and the night tour men average sixty hours per week or ten hours per day. Owing to conditions inherent in the industry, the seemingly long hours of the tour workers are necessary, but not over 15 per cent. of the total number of the paper mill workers are so employed. Paper making as practised by the tour workers is an art rather than a trade through every part of the operation. From the time the rags are put into the washers until the finished paper is run off the machine, individual skill and judgment play a predominant part. No two men given the same stock can produce exactly the same result, and it is only by dint of long practice and co-operation that the production of the night and day tours does not vary materially. Most of the troubles



affecting the printer and user of paper can be traced directly or indirectly to this peculiarity. The operation of preparing stock for making paper is so long continued, that it is not possible to economically run a mill running days only, as the preparation of stock must run into the night, or if started in the evening, must extend into the next day. This stock if stationary for any length of time undergoes certain changes which makes it difficult to run; even the Sunday shut-down being likely to cause all unfinished material left, to deteriorate considerably. In general, the fewer men handling the machine or beaters, the better the results, and these facts make the strongest reasons against changing from two to three tours in fine paper making. Day workers or about eighty-five per cent. of the operatives of these mills work nine hours per day or else work five days of ten hours and Saturday five hours, giving a week of fifty-five hours for which they are paid as if they worked sixty hours.



### CIGARETTE PAPER

Of the great army of cigarette smokers there is probably not more than one in a hundred who knows that rice paper, in which the tobacco is wrapped, has nothing to do with rice, but is made from the membranes of the breadfruit tree or more commonly of fine new trimmings of flax and hemp.

So light is this paper that 500 of the tiny sheets go to make an ounce. They are perfectly combustible and give off the minimum of smoke. Before being rolled with tobacco, they are analyzed to prove that they are free from all deleterious ingredients and that they contain nothing but the purest paper fibre. Only new material—flax and hemp trimmings—is used, and these are thoroughly purified.

Chopped by machinery into minute particles, they are well mixed by a re-

volving fan and then reduced to a dust, which is placed in a solution of lime and soda. After remaining in solution for some time it undergoes a thorough washing process, the water being the purest kind.

Then the pulp is rolled out into paper. At first it is of a grayish tinge, the pure white of the finished product being obtained by an electric process.

The French manufacturers of cigarette paper practically supply the entire world, the output of Austria and Italy being insignificant.



### IMPERIAL PAPER MILLS.

At Sturgeon Falls on the 17th ult, the citizens held an indignation meeting to protest against delay in the liquidation proceedings of the Imperial Paper Mills, which constitutes the chief industry of the town. The mills have been in the hands of the receiver for over four years and it is alleged that the failure to put the mills on a proper operating basis or to sell them to a concern which would do so, has wrought grave injury to the town and district. It is believed that the failure to find a purchaser has been due to the high reserve price set upon the sale by the English owners of the plant. A committee was appointed to wait upon the Provincial and Dominion governments to lay the situation before them and to ask for immediate relief. The Ontario government controls the concessions, the cancellation of which would render the mills useless.

An interesting incident took place a few days ago when by order of the liquidator the local electric light plant, situate in the mill, was shut down, blotting out the street lamps and depriving residences of their light. As one of the big bones of contention in the matter is the claiming of 760 horse-power by the electric light company this move is interesting. The situation, as stated by the light company, is, that it leases water power to the paper mills in return

for which it gets electric power at a certain price. With this the light company supplies the town. The lease is for 99 years. It is a great pity that some decisive move cannot seemingly be made in connection with the mills. The cost of such a long period of liquidation and of in connection with the mills. The cost of such a long period of liquidation and of litigation, which reminds one of a case in Chancery in England, is very great, and, in the interests both of creditors and of the mills themselves, it would be advisable to accept one of the numerous offers which we understand have been made for the property, even though it might not be so high as at first thought reasonable by the holders.



#### A LESSON FOR PROTECTION.

The terrible fire recorded last month in Northern Ontario which swept away thousands of acres of good pulp wood in the Cochrane and Porcupine districts seems to have given rise to the idea that Canada's pulp manufacturing industry had received a serious, if not vital blow. Nothing could be further from the truth. The destruction caused by the fires in question was lamentable particularly as it was accompanied by terrible loss of human life, but the pulp-wood resources which were burned vast though they were, are but as a fleabite to those still remaining untouched in Ontario, not taking into account other enormous areas in various parts of the Dominion. There is more than one point in the above district where a profitable pulp manufacturing business might have been carried on, before it was visited by the destroying conflagration, so that from all points of view it was a terrible calamity. But other districts possess resources equally valuable. A lesson should be learned from the Porcupine horror; that no care can be too great, no precaution should be left unheeded, to provide

against similar outbreaks in other parts. It is gratifying to note that the Conservation Commission, of which Honorable Clifford Sifton is the chairman, has sent a representative, W. A. Atkinson, into the Porcupine district to obtain first-hand information, and to investigate the causes of the fire.



#### CANADIAN BOVING CO.

G. Björnström Seffanson has joined the Canadian Böving Co., Ltd., general hydraulic engineers and manufacturers of pulp and paper machinery, which has its offices at 164 Bay Street, Toronto. He will act as their pulp and paper expert. Mr. Seffanson has just returned from an extended visit to Eastern Canada and Newfoundland. He reports that the mills now running are enjoying a good and profitable business, and that openings undoubtedly exist for many additional plants. He believes that within the next few years these opportunities will be developed. Parties interested in opening up new waterpowers or timber tracts would do well to communicate with the above. Mr. Seffanson comes from Sweden, that home of the pulp and paper industry, where he has had long experience in all branches in some of the leading mills. The above firm bring most of their machinery from their works in Sweden, which were established over thirty years ago.

Owing to the continual expansion of the business of the Canadian Böving Company which necessitates the frequent absence of their manager, Mr. F. A. Yerbury, from the head offices in Toronto for considerable periods, the English Parent Company having entered into arrangements with Mr. Aubrey V. Clayton, M.I.E.E., to temporarily conduct the company's business in Canada. During his stay here Mr. Clayton will also look into the possibilities of establishing works in this country for the manufacture of some of the Canadian

Böving Company's various specialties, which include urbines, Pumps and Pulp-Making Machinery. Mr. Clayton's qualifications in this respect are unrivalled owing to the unique experience he has had of English, American and European methods. His ten years pioneering experience in Scandinavia, where he was partly responsible for the starting of the Magnet Company and entirely responsible for the inauguration of the Clayton-Unger Works, an amalgamation of which interests now operates with a capital of about one million dollars, should be of great assistance to him here. The chief manufactured products of Scandinavia, timber and pulp, are similar to our own products, and it has been in connection with machinery for the manufacture of these products and the equipment of hydraulic power with electrical transmission that Mr. Clayton has been chiefly occupied.



## NEW INCORPORATIONS

Plans are being prepared for building the mill of the new Inter-Lake Tissue Mill at Thorold.

Canadian Timber Investment Company, Limited, 75 Lombard Street, London, E.C., licensed to do business in British Columbia, capital £400,000; office in Vancouver at the Royal Bank Chambers.

The Minnesota and Ontario Power Company are said to have plans in readiness for building a 70-ton paper mill at Fort Frances, Ont., putting in two machines for making news print and wrapping paper respectively.

Winnipeg News Company, Ltd., Winnipeg, capital \$20,000, to publish and distribute books, newspapers, etc. J. R. Tanguay, W. H. Lunney, W. J. Walsh, J. H. Brittle and C. J. E. Charbonneau, all of Montreal.

Canadian Publicity Bureau, Limited, Montreal, capital \$100,000, to carry

on a general printing, publishing and engraving business, publish books and newspapers, etc. W. F. Chipman and R. O. McMurtry, advocates, and F. G. Bush, book-keeper, all of Montreal.

Manouan Lumber, Power and Pulp Company, Montreal, capital \$90,000, to deal in all kinds of timber, erect pulp and paper mills and to acquire for light, heat and power purposes the power from Manouan Falls, County Champlain, Que. W. J. White, A. W. P. Buchanan, E. C. Young, A. E. C. Buchanan, and A. H. Elder, all of Montreal.

Powell River Company, Limited, head office Vancouver, capital \$4,000,000. To acquire from the Powell River Paper Company, Limited, all property, contracts, privileges, etc., which that company hold under the Water Clauses, Consolidation Act, 1897, and the Water Act, 1909, and to manufacture pulp, paper, timber, etc.

The British Columbia News Company, Vancouver, capital \$20,000. To purchase, import, publish and distribute books, magazines, newspapers and other printed matter, carry on business as proprietors and publishers of newspapers, stationery, engravers, etc. J. R. Tanguay, W. H. Lunney, H. J. Elliott, J. H. Brittle and C. J. E. Charbonneau, all of Montreal.



The model town of Powell River, B.C., was damaged by fire, the general store of the paper company being damaged to the extent of \$20,000.

Attention is drawn by Alberta newspapers to the large pulp wood concession existing near Entwistle, some 65 miles west of Edmonton where the G.T.P. crosses the Pembina River, and prospects for a pulp mill are spoken of favorably. So far as we know, no capital is yet interested in the project. The Canadian Northern Railway will pass near.

## Pulp and Paper News.

Machinery of up-to-date character is being purchased for the new paper plant at Sapperton, B.C. The buildings are in readiness.

\* \* \*

An English syndicate has purchased the timber limits of A. B. Hunt, M.P., in Lake St. John region, Quebec, and may erect a pulp mill.

\* \* \*

Newfoundland is dead against the reciprocity agreement with the United States. Newspapers there of both political parties recommend strongly against any departure from the Island's present policy.

\* \* \*

Ritchie & Ramsay, manufacturers of coated paper and board, expect to start work on the extension of their mill at New Toronto in a week or two. Plans will be made for the installation of their new machinery, probably two single coating machines and one double.

\* \* \*

At the annual sale of no-mark and mixed logs by the St. John, N.B., Log Driving Company, good prices were obtained as a general rule. A large quantity of spruce was bought by the Eastern Packing Company for \$14.50.

\* \* \*

Plans are said to be under consideration for the reorganization of the Miramichi Pulp Company, Chatham, by English capitalists. If this be carried out the plant will be enlarged and its capacity increased from 45 to 90 tons per day.

\* \* \*

The district surrounding English River, the boundary between old Ontario and Keewatin, is believed to possess great resources in pulp wood. J. W. Currie is about to survey the territory at the head of a party sent by the Department of the Interior.

The New Brunswick Pulp & Paper Company, Millerton, N.B., have decided to instal a multiple effect evaporator for the recovery of their sulphate liquors. This is being built by the Swenson Evaporator Company of Chicago, and will be installed this fall.

\* \* \*

Edwin Crabtree & Sons, Crabtree Mills, Que., intend making some changes in their plant. While they will make news-print, they will also continue making their present lines of wrapping papers. Their plans are scarcely completed as yet, however.

\* \* \*

The Consolidated Lithographing and Manufacturing Company now operate a large plant on Parthenais Street, Montreal. Besides carrying on a large lithographing and printing business, they have two coating machines giving an output of four tons per twenty-four hours, and one board machine with the same capacity. H. B. Clark & Sons of Halifax, are selling agents.

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The pulp and paper industry is now figuring, for the first time, in the Toronto Exhibition. Bertrams, Limited, paper makers' engineers of Edinburgh, Scotland, through the J. L. Morrison Company, of Toronto, are exhibiting a new model of beating and refining engine. This machine, of which twelve have been sold within the last few months, will be found in the machinery hall.

\* \* \*

The Quebec Government has made another move for better conservation of natural resources. In future, instead of selling water powers outright, as was done in the case of the Grand Mere and Shawinigan Falls, they will be rented by long leases of ninety-nine years. Ten water powers in different parts of this province will shortly be offered by this method.



The following dispatch comes from Ottawa:—Chester W. Lyman and Rodolphe Pagensbacher, officers of the International Paper Company, and Manufacturers' Paper Company are at Ottawa investigating conditions. They are sure that there will be an immediate and substantial increase in the manufacture of paper and pulp wood in Canada for export to the United States owing to the abrogation by the States of the duty on these products. The Manufacturers' Paper Company will establish plants on this side of the border.

\* \* \*

The Victoria Paper & Twine Company, of Toronto, Canada, (an associate house of Charles F. Hubbs & Company, of New York City) have been appointed selling and distributing agents for the Continental Bag & Paper Company, Limited, of Ottawa, Canada. Just at the present time, they have three grades of grocery bags, viz.; Governor, Primer, and Colonial, which will be placed on the market, followed by other grades, just as early as possible. The special feature of the above bags is that they are absolutely germ proof. Samples, etc., will shortly be forwarded to the trade and in the meantime, all inquiries, etc. will receive most careful attention.

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W. D. Woodruff, of the Lincoln Paper Mills, has declined to stand as the Liberal candidate for the county of Lincoln. The World reports Mr. Woodruff as saying:—"He was tied hand and foot with work at his mammoth new paper mill, which now occupies all his time. Mr. Woodruff expressed his approval of reciprocity and is one of the few who would benefit from the pact. Being a paper manufacturer, he benefits by the pulp clause, which allows free entry into the States of paper worth less than four cents. 'I am the only man in the room,' said he, at the con-

vention, 'who, as yet, benefits by reciprocity.'"

\* \* \*

There is a dispute between the Dominion and Ontario governments respecting the control of waterpowers in the province. The Ontario Government recently passed a bill declaring that leases did not include beds of streams, and consequently that where the Dominion Government had acquired rights from riparian owners, these did not carry any right to powers, whereas the courts had been maintaining that such leases of the land bordering on the shore did actually include the stream bed. The Provincial Government insists that any power incidentally developed by the construction of dams shall remain under provincial jurisdiction, though it admits the right of the Dominion Government to take water from lakes or streams for navigation purposes.

\* \* \*

As stated in last issue, J. R. Booth recently inaugurated an eight-hour day in his Ottawa paper mill, with three gangs working eight hours each, instead of two gangs working eleven and thirteen hours, respectively. On the 20th ult, some twenty hands in the beater department, envying this arrangement, struck work, demanding an eight-hour day for themselves, some 50 or more hands in the paper department having to quit owing to the cessation of work by the former. Some of the strikers belonged to the local Paper Makers' Union, but this body did not give full support to their claims, and in any case, as is well known, Mr. Booth, who seldom has to encounter labor troubles, prefers to deal with individuals rather than with an International Union. We understand the men affected received a wage increase only a short time ago, and their work is not skilled labor. The trouble was over in a few days the men returning to work without having obtained the desired concessions.

## TUG OF WAR TEAM.

The accompanying cut is a picture of the William Barber & Brothers "Husky Tug of War Team" winners of the silver cup shown thereon at the Drummer's

Snack Club, held at Georgetown on July 15th 1911. The above team defeated the Canada Coating & Dayfoots teams for the trophy.



The figures, looking from left to right, are:—Top row: ALBERT MASON, JAS. NORTON, ROBT. BRADY, CAPT. R. R. BARBER (Sec.-Treasurer), JAMES McNICHOL (General Supt.), JNO. MASON, ED. RAYMOND, ALBERT CUMMINGS, Bottom row: THOS. ARMSTRONG, DICK MARCHMONT, CHAS. BURNSIDE (Capt.), ROBT. MAW, HARVEY BRADLEY.



## KRAFT PULP AND PAPERS.

In connection with the prodigious development of the manufacture of Kraft papers during the past few years it is of interest to compare the opinions, herewith produced, of various experts on the subject.

Dr. Wrede gives some instructions, quoted by "Paper," regarding the chemistry of pulp, and says:

The manufacture of soda cellulose has a remarkable history. At first this way of producing pulp from wood was the only method. When, in the beginning of the seventies, sulphite cellulose began to supplant the manufacture of soda cell-stuff (on account of the limited yield of the latter), an improvement was effected in the soda process through the use of sulphate of soda, by which means in the recovery of the lye effective sodium sulphide ( $\text{Na}_2\text{S}$ ) results. However, while it was found that the higher proportion of sulphate, a very disadvantageous factor had to be taken into consideration, in the

form of the bad odors arising from this sulphate process. Without arrangements for counteracting these odors the employment of the process would be almost impracticable.

Of late years in the manufacture of wrapping papers (especially of those for particular uses) the element of exceptional strength has been introduced. Through certain methods it has been found possible by the sulphate of soda process to produce a wrapping paper of considerable strength. These Kraft pulps were first made about fifteen years ago by some Swedish cellulose factories, but the cellulose and paper mills of Count Henckel von Donnersmarck have since produced Kraft paper rivaling the Swedish article in strength and external properties. One reason for the close attention paid by that concern to the chemistry of cellulose, and to processes for its manufacture, is the fact that the factory controls most of the patents and processes for the production of artificial silk. For several

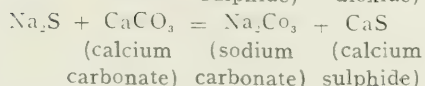
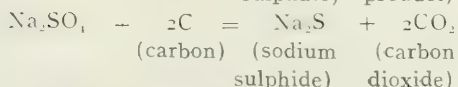
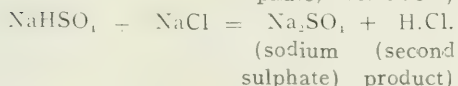
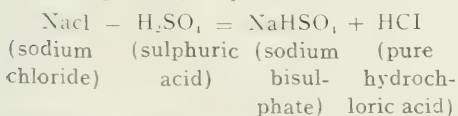
years the principal German makers of Kraft paper have succeeded in producing articles absolutely equaling the produces of their Swedish competitors.

It was in America that the attempt was first successfully made to ship cement in a more advantageous form of packing than jute sacks. The sacks for this new purpose were made from a kind of Kraft paper, composed of unbleached manila pulp and thirty per cent. of cellstuff. This invention was regarded as of much importance; in the first place, because the danger is obviated of the cement getting damp in transit, and, secondly, the cost of producing these paper sacks is from  $1\frac{1}{4}$  to  $2\frac{1}{2}$  cents, according to the quality, against twelve cents for jute sacks. As, however, manila pulp is too dear in Germany, cement sacks are there made from extremely strong Kraft papers of German factories to which reference has been made.

While it was in most cases found possible to make other changes in the direction indicated, the regeneration of the waste lye formed a point of difficulty to various mills operated by the sulphite process.

It may be remarked beforehand that the art of producing Kraft paper is not paper making, but consists in the preparation of the so called Kraft cellulose.

As the chemistry of lye preparation, of such importance in the manufacture of Kraft cellulose, is by no means simple, the following reactions, according to the Leblanc process, may be of interest:



Although, as may be seen by these re-

actions, all the raw materials for the processes in the sulphate manufacture are much the cheaper, the soda and soda sulphate processes (except for the production of Kraft cellulose) have not been able to resist the triumphant progress of the sulphite cellulose manufacture.

Success in the manufacture of Kraft cellulose is solely dependent upon the skilled preparation and the keeping constant of the lye as well as upon the manner of its employment.

A certain definite relation exists between the concentration of the lye, the proportion of sodium sulphide, the pressure, the duration of the boiling and the yield of fibrous material. As the writer has already pointed out in his considerations on "The Boiling Test," it is important to conduct the process in such a manner that a definite kind of boiling is attained. In this case it is not the liberation of the pure cellulose fibres which is sought, but to obtain such cellulose fibres as will surpass in strength all substances of that nature with which we are acquainted.

A weak lye must be subjected to a higher pressure in the boiling. When treated for a longer time the yield is better. On the other hand, pressure, time and fuel may be economized in the case of strong lye. The above factors must be varied according to the nature of the wood and strength desired in thin or thick papers.

The concentration of lyes varies between eight and ten degrees Bé.

Two varieties of sulphate process are distinguished. The pure sulphate process and the sulphate-soda process.

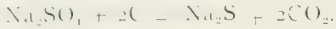
A sulphate boiling is preceded by an introductory soda boiling in a solution of caustic soda, sodium sulphate being added to the latter. The sulphate is not an active agent in this boiling. It is only on the recovery of the lye that the sodium sulfide, which acts so favorably, is produced.

The first boiling has  
NaOH and Na<sub>2</sub>SO<sub>4</sub>.

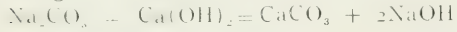
and in the second boiling there are

$\text{NaOH}$ , and  $\text{Na}_2\text{S}$ , and  $\text{Na}_2\text{CO}_3$ .

By heating sodium sulphate with carbon, or substances containing carbon, sodium sulfide is produced.



From caustic soda is produced carbonate of soda, which, by causticizing, will be again transformed into caustic soda.



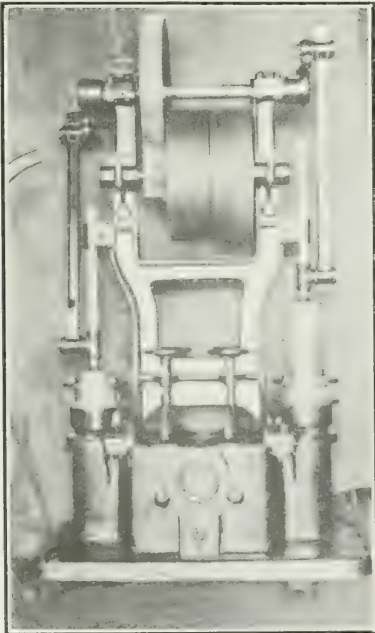
A third boiling will then produce in the lye a combination of  $\text{Na}_2\text{CO}_3$ ,  $\text{Na}_2\text{S}$ ,  $\text{NaOH}$ .

(Continued next issue).



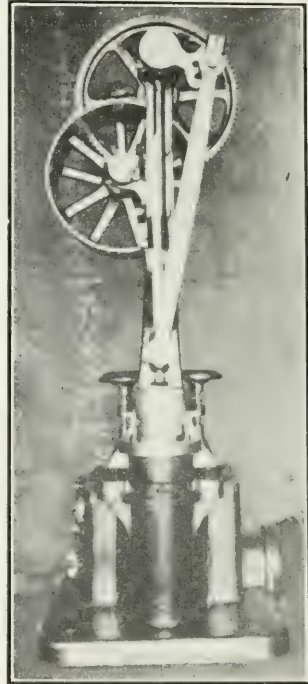
### THE McOUAT PLUNGE STUFF PUMP.

T. McOuat & Son of Lachute, Que., have lately placed on the market a new two-plunger stuff pump, which has a number of new and important features which will be greatly appreciated by practical paper makers. Every paper maker knows the importance of easy



access to pulp valves, and also the importance of being able to replace worn parts quickly and cheaply. This pump

has a hand wheel over each valve. One turn of this wheel releases the cover and gives direct access to the valve. Then again each valve is housed in a cage and seat separate from the body of the pump. By slackening one set screw this whole cage and seat can be



lifted and a new one dropped in. A valve seat can be replaced in less than five minutes at a cost of from 75 cts. to \$1. The plungers are solid drawn brass tube. Cross heads and connecting rods are of steel with large pockets for lubricants. It has three changes of stroke and is driven with heavy cut gears, which makes a smooth running durable pump. Three of these pumps with 6-in. plungers have lately been installed in the J. C. Wilson & Co.'s mills at Lachute and are giving good satisfaction. Larger sizes are in course of construction. This firm also makes three sizes of single plunger stuff pumps and a great variety of power pumps for mill supply and fire purposes.



The model town of Powell River, B. C., erected by the Powell River Pulp & Paper Company, suffered damage by fire last month to the extent of \$35,000.

\* \* \*

J. E. Henderson and H. Schulz of the Bull River Power Company, Madison, Wis., and A. C. Stielow of Milwaukee, propose to establish a pulp mill near Fernie, B.C.

\* \* \*

The Garden City Paper Mills are making good headway with their new mill near St. Catharines, Ont., and expect to have the plant running by November 1st. They have issued a large hanger which is being distributed among the trade.

\* \* \*

The Remington Martin Paper Company, St. Regis Falls, N.Y., have contracted with a Quebec firm for 17,000 cords of pulp-wood to be shipped by barge to Washington, thence by rail to the company's mills at Raymondville, Norfolk and Norwood.

\* \* \*

The Pigeon River Lumber Company, operating in Rainy River district, shipped a large raft of pulp wood to Wisconsin recently and this is looked on as the precursor of a considerable exportation of Canadian wood to Wisconsin points in the near future.

\* \* \*

On the 2nd inst. damage by fire to the extent of \$30,000 was done to the stock and plant of the St. Lawrence Pulp and Paper Company. The fire originated in the drying-room, and spread with great rapidity. As the industry is in the Chaudiere manufacturing district, the whole fire department was called out, and confined the flames to the upper storey of the building. Several employees escaped only by jumping to a neighboring roof.

\* \* \*

Work has started on the dismantling of several buildings on the property recently purchased from the Lake Superior

Corporation at Sault St. Marie, Ont., to make room for the new mill. The new building will be 500 feet by 180, and will take eighteen months to erect. This disposes of the rumor that the new mill would be located on the United States side. A new coffer dam is being erected to augment the power now supplied the pulp mill, and the output of pulp will also be increased by another 50 tons per day, to supply the paper plants. A battery of 14 boilers is also to be installed in the old power house of the suiparte mill. The plant will employ about three hundred hands. Bonds to the value of about \$3,500,000 were floated in London several weeks ago. The industry, when completed, will represent an investment of \$8,000,000, and the present expenditure is estimated at \$3,000,000.



#### NORWECIAN PULP CONDITIONS.



A lock-out is on in Norway affecting nearly 50,000 employees in the principal mechanical and chemical pulp mills in that country. Wages are the issue. The conflict is likely to reach an acute phase, so far as this continent is concerned, about the middle of next month. Opinions are divided as to how long the trouble will continue, but it is bound to materially diminish the supplies of pulp.



#### MEASURING QUALITY IN PAPER.



In speaking of how to test the elements that go to make up "quality" in paper, Arthur D. Little, of Boston, official chemist of the American Paper and Pulp Association, says:—

Fortunately, what may be called the fundamental properties of paper permit in nearly every case of exact measurement and numerical statement. These fundamental properties are thickness, weight per unit area, resistance to bursting strain, tensile strength in dif-

ferent directions, stretch, ability to resist wear, tendency to absorb ink or water, opacity. Furthermore, these properties are largely determined by the composition of the paper, and the care and skill with which its material has been prepared and manipulated during manufacture. Fortunately, again the composition can be accurately determined by chemical and microscopical examination, while at the same time many direct and important inferences may be drawn from these examinations as to the course and nature of the processes of manufacture.

Of all the fundamental properties, thickness is perhaps most easily determined. Differences of a few ten-thousandths of an inch are instantly detected by trained fingers, and the exact measurements of thickness to ten-thousandths of an inch is easily made by means of several forms of micrometer employed in paper testing. Thickness bears directly upon quality in case of most papers, but the way in which it bears is determined always by the purpose for which the paper is intended. Bible paper, onion skin, kraft, pergamin, condenser paper, tissues generally, and many other special sorts gain in quality, as represented by money value, with decrease of thickness, partly because of increased difficulty and cost of manufacture, but principally because they better meet the necessities of the consumer. Other things being equal, a manifold paper which permits the making of ten copies is obviously a better paper for its purpose than one which cannot be used for more than five. The quality and value of the paper used for building up electrical condensers is enormously influenced by the relative thinness of the paper, since the efficiency of the condenser depends largely upon the closeness with which the tin foil plates are brought together; but, while thinness is thus important, quality in this case is finally determined by absence of pin-holes the presence of which entirely destroys the value of the paper for its purpose.

## PAPER STOCK MARKET.

Montreal, Aug. 3, 1911.

Dealers report a very dull market. In the case of paper shavings, the tendency of prices has been generally lower, and there have been a few declines in price. Paper shavings are largely sent to the United States, and trade there is quite dull at present. Nothing feels the influence of hard or good times more quickly than the paper market. Not only is much more paper used in the way of wrappers for goods, bagging in grocery and other stores, but even in the correspondence carried on in the different offices throughout the country, the volume of this being enormously greater during busy times than during dull. Around Christmas times, for instance, the quantity of paper used is many times as great as during the mid-summer period, and the effect is immediately felt in the paper mills. Hard, white paper shavings declined 10 to 25c. per 100 pounds during the month, and No. 2 soft white, 20 to 25c., while printed book paper fell off about 10c. and common waste about 5c. per 100 pounds.

In Canada, trade is in very good shape all round, and as a result the demand for paper and paper stock is very good. So far, the paper stock market does not appear to have been in any way affected by the action of the United States in admitting pulp and paper free when it is manufactured from wood grown on private lands, although there is a certain relationship between the price of chemical pulp and rag and paper stock. Following are the current quotations:—

Shirt Cuttings—	Per 100 lbs.
White . . . . .	\$5 25 to \$5 50
Unbleached cotton . . .	4 25 to 4 50
Shoe Rag Cuttings—	
Bleached . . . . .	4 25 to 4 50
Mixed white . . . . .	2 75 to 3 25
Light print . . . . .	3 00 to 3 25

(Continued on Page 70.)

# THE PULP AND PAPER MAGAZINE OF CANADA

Vol. 9—No. 9.

TORONTO, SEPTEMBER, 1911

Canada, \$1. a Year.  
Single Copy, 10c.

## Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade

**Subscriptions:** Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage, \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required, four days earlier. Cuts should be sent by mail, not by express.

**BIGGAR-WILSON, Ltd.**

**PUBLISHERS.**

Offices, Confederation Life Building,  
Toronto, Canada.

## THE EFFECTS OF RECIPROCITY.

The papers on both sides of the boundary are full of items purporting to show the wondrous effects Reciprocity will have in the development of the news-print branch of the paper industry in Canada. In fact, as the United States Government, as explained in last issue, has thought fit to give this country the "benefit" of Reciprocity, without even waiting for that agreement to become law, this development has already been well started. Private pulp lands in Quebec, it is stated, have already made a considerable rise in value, owing in the first place to free entry into the United States of pulp and paper produced from the same; and secondly to provincial restrictions on the products

of the Crown Lands. Americans also are in the market in unprecedented numbers, it is said, for these lands. Not only this, but all sorts of reports are emanating from more or less authentic quarters to the effect that millions of United States capital is ready for investment in Canadian pulp and paper enterprises. One of these is said to involve the sum of \$30,000,000 to develop water-powers, build mills, etc., in Quebec for the manufacture of news paper, cardboard and chemical pulp, though the decision of this particular syndicate is said to be in abeyance pending any possible change of view on the part of the Quebec Government respecting the restrictions on Crown Lands products. So far as we can discover, this rumor has to do with the plans of the International Paper Company, at whose annual meeting a week or two ago, it will be remembered, the forecast was made in an official report that within five years one-fourth of the company's whole output would be produced in Canada. There are other mills which are believed to contemplate establishing plants in Canada.

The American newspaper publishers, whose revengeful tactics against the paper manufacturers have to this extent been crowned with success, point to this culmination with triumph, thinking that the addition thus made to their

sources of supply for news print should result in lower prices and less independence on the part of the manufacturers. They forget that even a 100 per cent. increase in the aggregate capacity of mills in Canada, would not necessarily mean anything like a proportionate increase in the sum total of their supplies. A considerable proportion of the increase in Canadian capacity would represent nothing more than a removal of plants from one country to the other, leaving the net total production but little changed. Naturally the first mills to go would be those with inadequate or inefficient equipment or situate in inconvenient locations, or rather these would go out of business altogether, leaving the field to the new, more up-to-date plants which would be erected in Canada. By just the superior capacity of the new plants to the old, would the sum total of the production be increased. But the point is that the gain from new mills erected in Canada would by no means represent net gain in aggregate daily production, from which the newspaper publishers might hope to obtain larger supplies at cheaper rates.

Already there is a disposition towards disappointment manifested by the publishers that they do not seem able to obtain paper cheaper as a result of the new regulations under which pulp and paper from Canadian lands on which there is no special export restriction, now enter the United States free of duty. In fact the tendency seems to be the other way. There has been such a demand for pulp from private lands that the price tendency has been actually upward, in spite of the water-powers having been improved through timely

rains, and it is quite likely, judging from market reports, that prices will go still higher. Some believe that the extra competition created for pulp from the above stated class of lands is likely to be so keen that it will almost offset the amount it escapes in duty.

The Pulp and Paper Magazine has not endeavored to create the impression that Reciprocity (or the American concessions which came as a forerunner to Reciprocity) will not benefit the news print branch of the Canadian paper industry. The fact that it may benefit one branch is not the main point. The proposed agreement, however, does possess features which should condemn it in the eyes of all true, far-seeing Canadians. For one thing it is grossly unfair to our rivals, the United States paper manufacturers, and we beg to differ from the old adage that all is fair in love and war. At least, trade is not the kind of war in which treachery on the part of the national guardians can be looked upon as a fair thing. Apart from that, however, and looking at the matter from a Canadian paper manufacturing point of view we do not think that an arrangement which benefits one branch of an industry at the expense of another, is either fair to ourselves or a benefit to the industry as a whole. The logical sequence of the establishment of plants in Canada, which Mr. Norris of the Newspaper Publishers' Association looks upon as such a triumph will be that many of the poorer class of news print paper mills in the States, put out of competition by the new tariff regulations, will be converted into cheap book and writing mills, and under the clause which allows these classes of paper to enter Canada free of duty when



not exceeding a value of 4c. per pound, ship quantities of their products into Canada to the detriment of our own established industries.

Why the representatives of the Ottawa government could have allowed themselves to be euchred into such an astonishing trap for the strengthening of a political party in a foreign country is beyond understanding. The only hope is that on the 21st inst. the people of Canada will give a deathblow to such attempts to entangle them with Washington partyism.



### LESSONS FROM THE FOREST FIRES.

While much has been done in Ontario in the way of framing regulations for the protection of forests against the ravages of fire, such occurrences as took place in Northern Ontario this summer and, in a lesser degree, almost every year, makes only too evident that those regulations are not sufficient; still worse, clearly they serve to show that it is not enough to make regulations. It is still more necessary that machinery should be provided for carrying them out strictly.

The Canada Lumberman brings up the question in a pertinent way. What is our plain duty under these circumstances? it asks. "Can we escape blame if our governments and we ourselves leave anything undone which might prevent these fires? Have we and our governments done all that we could even in the present year? In the light of what has occurred in New Ontario it is impossible to answer these questions in the affirmative."

The North country is a vast, almost uninhabited land. To patrol it effectively, a force of fire rangers many times as numerous as the force at present employed, is necessary. Above all, the men employed should be capable. This is where, thinks our contemporary, the present system is open to the greatest criticism. In years gone by the rangers appointed by the Government of Ontario have not been the proper men for the work. Last year a change for the better was made and it is perhaps too early as yet to expect good results from the move. Forest rangers cannot be trained in a day or in a season. The man who can look after himself in the bush and who also knows how to fight a forest fire is a rarity. The Government of Ontario, if it hopes to cope with the situation successfully, must make its forest ranging staff many times larger than it is, and must make far greater efforts to secure able men for the work, than they have in the past.

It is stated by Geo. Gordon, M.P. of Cache Bay, a well-known lumberman, that the pulp industry of the province has suffered a severe setback. This is, of course, only potentially and inasmuch as the recent fires in Cochrane and Porcupine districts swept out of existence such large quantities of valuable pulpwood. There still remain immense areas of fine pulpwood. This does not, however, absolve us from responsibility for the valuable proportion already destroyed; still less from responsibility for the safety of that remaining. Mr. Gordon also states that the fires were all on government-owned land. Lands actually licensed to lumbermen are protected by fire rangers at their own expense; but it handi-

caps them if they are also to protect their areas against fires breaking out on surrounding areas only half protected. The fact that warning had been received of fires burning along the line of the Temiskaming Railway and in Porcupine district, a week before the towns of Cochrane and Porcupine were destroyed, is sufficient evidence that present protective measures are not adequate.



### FREE PULP AND PAPER WITHOUT RECIPROCITY.

When the reciprocity scheme for diverting attention from the republican party's home troubles was first proposed, the Conservatives here contended that if Canada only waited patiently the United States tariff would be reduced without mixing this country with the domestic affairs of the United States. The demonstration of this contention is now before us, for the last number of the Pulp and Paper Magazine of Canada contains the text of the instructions issued from Washington to the consular agents and customs collectors governing the admission of pulp and paper and the Canadian mills who are in the habit of shipping to the United States, are getting their products free into that country to-day. The instructions require that proof be furnished that the pulp and paper are made in Canada and that they are made from wood taken off private lands, which conditions are required by the agreement itself. Unfortunately for the Finance Minister he cannot claim that this event was anticipated because in his letter to U. S. Secretary Knox, which forms part of the

agreement, he uses these words: "The provisions you are proposing to make respecting the conditions upon which these classes of pulp and paper may be imported into the United States free of duty, must necessarily be for the present inoperative," etc. That Secretary Knox himself understood the arrangement was to be conditional on the passing of the Canadian act is apparent from his reply to the Canadian commissioners in which he says: "Your statement re the proposed arrangement is entirely in accord with my understanding of it." And yet, such was the importunate clamor of the United States daily papers for free print paper that President Taft has already given it to them, and the Canadian act is nowhere near the statute book. Wherefore it is proved that in the most important industry affected the United States government has already been compelled to admit Canadian products free without the agreement.



### MR. ROWLEY ON RECIPROCITY.

The following letter by W. H. Rowley, president of the E. B. Eddy Company, Hull, Que., has been addressed to all that company's branch managers and agents for perusal by all its employees:

Dear Friends: The Taft-Fielding reciprocity compact, apart from any question of politics, of religion or of race, is unpatriotic, uncalled for, unwise and unbusinesslike and is sure to affect the best interests of Canada.

The artisan, the agriculturist and all the men and women work with their hands and all the people who do office and clerical work in carrying on the business of the country will surely suffer if the Taft reciprocity pact goes into effect in Canada.

So far as our company is concerned there is no political sentiment or feeling for or against any government or for any particular political party.

The late Mr. Eddy was and Mr. Milten is, independent of politics, while I take only a passing interest in political matters; have never belonged to any political party or organization, nor attended any political meetings for the last quarter of a century, but we are all interested, and intend to continue to be interested in the protection of the natural resources of Canada, and to try to prevent our forests, our farms, our mines, our fisheries and all other national resources from being wasted, as have been done in the United States, because our resources will be depleted and destroyed if the Taft-Fielding reciprocity pact carries.

Wherefore, we want everyone of you, in the best interests of Canada, of our homes and our home trade, to do all you can, wherever you can, to help elect members pledged to support the conservation of our natural resources and the protection of our lands and our laborers from being used for the benefit of our commercial competitors to the south of us.

We would like to have your promise in this behalf and to know that all your help and all your sympathy is opposed to reciprocity.

Yours faithfully,

The E. B. Eddy Company, Limited.

By W. H. Rowley, president.

God save the King and save Canada to us Canadians.



#### THE POLITICAL SIGNIFICANCE OF THE RECIPROCITY QUESTION.

The following letter to the Toronto World from a prominent Canadian, now in Chicago, draws in such a balanced, logical form, the evils which may be looked upon as likely to ensue to Canada should the reciprocity pact become law, that we do not apologize for printing it in full:—

Kindly allow me through your influential journal to say what I, as a Canadian long resident in the United States, think about reciprocity. It is a satisfaction occasionally to be able to say what one really thinks.

For the United States reciprocity with Canada is a wise, because now a necessary, agreement. But for Canada, as all Canadians living on this side of the line clearly see, it is an unwise agreement—commercially unnecessary, for one thing, politically dislocating in its ultimate effects for another.

Through some failure of perception on the part of the two or three men in Canada, who arrogantly took it upon themselves to negotiate the pact, the coming radical revision downwards of the American tariff was not given any consideration. Without making any of the concessions now made in the reciprocity agreement, Canadians would presently have had as free access to American markets as might be desired. For this reason, if for no other, I consider the reciprocity agreement the greatest possible blunder.

I am quite unable to share in the optimism and breezy confidence which animates the premier of the Dominion touching the invigorating and stimulating effects of reciprocity upon Canadian industry. On the contrary, I believe, and many Canadians here share my belief, that it will work immense harm to your industries. Above all things Americans desire access to your forests and control of your wheat. In fifteen years from now the last of the forests in this country will be gone. The supply of pulpwood is limited practically to a few tracts in Maine. Hence Americans must turn to Canada for timber and pulpwood, and must have them at any price and at any concession.

As for Canadian wheat, you will soon produce this commanding cereal at the rate of a thousand million bushels a year. Canada should soon be the milling centre of the world. But under reciprocity Minneapolis and other American mills will grind your wheat and

control the world's market in this commodity. Any member of the Chicago exchange will tell you this. Moreover, any member of this exchange will admit, too, that the Manitoba farmer, under reciprocity, will get less for his wheat in the long run than he gets now. The reciprocity pact will necessitate a change in the Wheat Inspection Act so as to make the grades the same as the American grades. That is, mixing must be permitted, and the standard lowered.

Under reciprocity the farmers of Ontario and Quebec will find the home market, which hitherto has been exclusively reserved for themselves, invaded by Americans bringing products in great profusion and variety. Making every allowance, and including even barley in this allowance, free access to the American border market—the interior is beyond reach—will, in no sense, compensate the Ontario and Quebec farmers for being crowded out of the home market.

Canadians should remember that they must give to twelve other nations the same tariff advantages which they give to the United States. Canadians place in jeopardy their forests, their pulpwood, their wheat, their rapidly growing home market, their rising industries, and they narrow the scope of their economic energies.

But after all, these material aspects of the question are not the greatest aspects, though the most obvious and the most discussed. There is a further and much graver aspect for consideration.

No man who possesses an adequate intelligence, and does not deliberately stifle it, can fail to see that reciprocity between Canada and the United States is in a very large and real sense an imperial question. By Mr. Borden, fortunately, this is clearly recognized and properly emphasized in all his public utterances on the reciprocity agreement. It is not merely a question of freer trade between this country and Canada. But Sir Wilfrid Laurier for one reason or

another persists in regarding the pact of concern only to the two countries immediately involved. Mr. Borden, on the other hand, vividly sees the situation, understands the hard times prompting the remarkable change in the attitude of the Americans toward Canada, and entirely appreciates the gravity and underlying meaning of the agreement. The leader of the Conservatives evidently feels deeply, not only his responsibility to the people for whom he so definitely and powerfully speaks, but likewise his responsibility to the Mother Country, to the British Empire. He would preserve intact the great empire in which Canada now plays such an important part, as he would preserve intact the political entity of the Dominion and its great heritage—the splendid natural resources of the country. In other words, Mr. Borden sees that which all Canadians living in the United States see, that reciprocity in spite of denials, official and otherwise, to the contrary, is regarded in this country as a bi-step towards annexation. If Canada is seeing how large a risk she can run, and still escape the snare, in thus coquetting with Uncle Sam, let me assure her present rulers that they are playing a perilous game. If ninety millions of people in the United States set themselves to get control of eight or ten millions of people in Canada, and to secure unlimited access to the natural resources of that country and its leading products, we have a situation of stupendous importance to the British Empire. As Kipling well and truly says: "Ten to one is too heavy odds." Living in the United States as I do, and have done for so many years, and counting amongst my friends and acquaintances men of affairs and leading publicity, I happen to know that Mr. Borden has abundant justification for every sentence he has uttered on the political significance of reciprocity. The probability of the annexation of Canada has taken firm hold of the public mind in this country. It accounts for the

(Continued on Page 324.)



## Pulp and Paper News.

J. L. Leith, manager of the Peerless Carbon Company, Toronto, has left on an extended trip to Great Britain and Europe.

\* \* \*

F. N. McCrae, of Sherbrooke, president of the Brampton Pulp and Paper Company is standing as Liberal candidate for Sherbrooke.

\* \* \*

The Barber-Ellis Company, Toronto, will erect a large new factory in Brantford. Their present capacity is over a million envelopes per day.

\* \* \*

Frank Ireton, a fire ranger, of Thornloe, Ont., was drowned at Barber's Bay, twelve miles west of Porcupine the latter part of August. His body was found floating on the water.

\* \* \*

The Capital Paper Box Co., of Ottawa, carried on by Wm. J. Harper, made an assignment to Wm. A. Cole, and a meeting of creditors took place on Aug. 26th.

\* \* \*

Work is being rushed on the new pulp mills at Ocean Falls, near Prince Rupert, B.C., which will be one of the largest on the continent. Wisconsin capital mostly is interested.

\* \* \*

C. A. Lyford & Company, forest engineers, Montreal, started field work in August on a survey of a portion of the limits of the River O'Neill Pulp & Lumber Co., St. Pacome, Que.

\* \* \*

The Swansen Bay Forests, Wood Pulp and Lumber Mills, Ltd., owned by a British syndicate, now have one dry sulphite pulp machine running with a capacity of 25 tons per day.

\* \* \*

J. R. Booth, the veteran lumber and paper manufacturer of Ottawa, who as a rule steers clear of party politics, recently came out flat-footedly against the

Reciprocity pact in a letter read at the Clifford Sifton meeting in Ottawa.

\* \* \*

Redolphe Forget, of Montreal, is the Conservative candidate in Montmorency County and Charlevoix, P.Q. Mr. Forget is interested in a number of pulp and paper enterprises in Quebec and is strongly opposed to reciprocity.

\* \* \*

A late August report to the labor department at Ottawa recorded no settlement of the pulp mill strike at St. George, N.B. The strike began on April 26th. No action will be taken by the government unless a request is made by one or both sides concerned.

\* \* \*

The New Brunswick Pulp and Paper Co., Millerton, N.B., will install an M. G. machine for glazing kraft paper. Heretofore kraft papers made in Canada have been of dull finish and the glazed product has been imported largely from Sweden.

\* \* \*

We regret to hear that John R. Barber, president of the Toronto Paper Company, was seized with a paralytic stroke about three weeks ago. He is recovering very satisfactorily, however, the seizure fortunately being only a slight one.

\* \* \*

The Beaver Board Mfg. Co., of Buffalo, are having plans prepared for the construction of a factory in Ottawa. It is stated that the factory will cover 15 acres and the balance of the company's property, 75 acres, will be laid out as a model village for the employees.

\* \* \*

The three million dollar plant of the Albert Reed Pulp and Paper Co., Newfoundland, was in serious danger for a time last month on account of forest fires. Embers several times set fire to the buildings and the entire force was turned into an impromptu fire brigade.

The council of the town of Thorold, Ont., is preparing to make a bid for some of the pulp mills to be built. Ideas for a publicity campaign are being considered. There are five paper mills and seven pulp mills within a radius of three miles from Thorold already. Mr. Foley, of the Foley, Rieger Co., is interested in the matter.

\* \* \*

The engagement was announced in Ottawa on Sept. 5th, of W. H. Rowley, president of the E. B. Eddy Company, and president of the Canadian Manufacturers' Association, to Miss Elsie Ritchie, youngest daughter of the late Sir William Ritchie, Chief Justice of the Supreme Court of Canada. The marriage does not take place until December.

\* \* \*

The purchaser of the A. B. Hunt timber limits in Lake St. John region, Quebec, the sale of which was recorded in the August issue, is the British Canadian Industrial Co., of Ottawa. A new company, formed for the purpose, will work the limits and will be known as the International Land & Lumber Co. The intention is to erect a pulp and paper mill in the near future.

\* \* \*

Chester W. Lyman and Rudolph Pagenstecher, officials of the International Paper Co. and Manufacturers Paper Co. respectively, are reported to have stated their belief in an immediate and large increase in the export of Canadian paper and pulpwood to the United States. This belief is founded on the recent changes in the United States tariff affecting these commodities.

\* \* \*

The Union Bag and Paper Company has begun work on the enlargement of its pulp mill at Three Rivers, P.Q. The plans, as prepared by H. S. Ferguson, consulting engineer, New York City, contemplate an increase from the 40 tons provided for in last year's con-

struction to 100 tons of ground wood pulp. The buildings will occupy about an acre of ground area. All material has been contracted for.

\* \* \*

The officers of the Interlake Tissue Mills, Thorold, Ont., are: President, George Carruthers; vice-president, I. H. Weldon (president of the St. Lawrence Paper Mills); secretary, S. F. Duncan. When completed the mills will have a capacity of eight tons of tissue a day. The main building will be 75 x 200 ft. and two storeys high, construction work to be brick and cement. Machinery installations include one paper machine, four beaters and one refining engine. Hydraulic power from the Welland Canal will be used.

—

P. B. Westbye, of Peterboro, Ont., has been appointed sole agent in Canada for Hermann Finckh, Reutlingen, Württemberg, Germany, maker of all kinds of wire cloths for pulp, paper and sulphite mills. The name Finckh has associated with it a reputation built upon years of experience in the manufacturing of this particular product. Business having been established and successfully operated since 1879. At the present day, Finckh's wire cloth is very extensively used in the leading pulp, paper and sulphite mills in Scandinavia, England, Germany and other paper making countries in Europe, and has gradually been introduced in Canada, as its merits are becoming better understood and appreciated by the pulp and paper trade in this country.



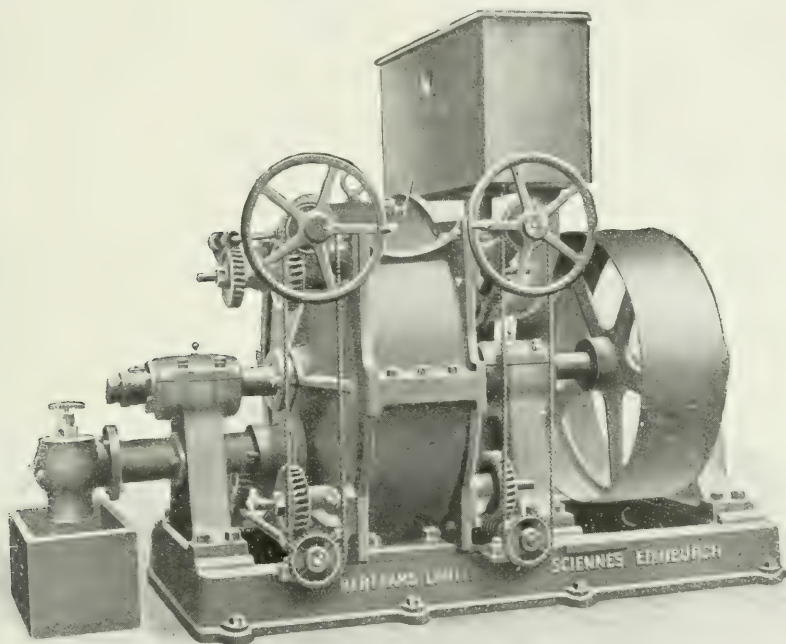
The Smart-Turner Machine Company, of Hamilton, have recently installed pumps at the following:—F. X. Bertrand Manufacturing Co., St. Hyacinthe, Que.; Peterboro' Water Works; Dominion Cannery, St. Catharines; Page Hersey Iron Tube & Lead Co., Welland. In course of installation: Price Bros. & Co., pulp mill, Jonquiere, Que.; Toronto General Hospital (pumps for heating system).

**CANADIAN NATIONAL EXHIBITION**

This year's Industrial Fair in Toronto certainly beat all records both in regard to the attendance and in the variety and high class of the products on exhibition, both in the manufacturing and the agricultural classes. As year by year goes by the educational value of such an Exposition to all types of people

Canadian agents. A view of the machine is shown herewith

It consists of a disc with bars on each side, revolving between two stationary discs also fitted with bars. The pulp passes from the feed box through the first set of bars outwards, assisted by centrifugal force, then through the second set of bars inwards, against centrifugal force. The action is perfect,



## IMPROVED REFINING ENGINE (1909 PATENT)

*Code Word "MILFYNE"*

throughout the Dominion becomes more and more clearly manifested. The directors are certainly to be congratulated on the able way in which they gauge the public taste.

Only one paper mill machine was exhibited at the Fair, this was a refining engine built by Bertram's Ltd., St. Katherine Works, Sciennes, Edinburgh, for whom J. L. Morrison Co., also dealers in bookbinding and printing, Toronto, are

owing to the fact that pulp will not pass through the second set of bars until properly reduced. Fibres which are sufficiently reduced pass easily through, while the reduced fibres are repeatedly brought under the action of the bars before they can pass outwards. This action is the result of the effect of centrifugal force combined with the greater density of unreduced fibres. No other machine has this important characteris-

tic; indeed, many machines on the market operate in quite the reverse way, by retaining fine pulp and allowing unbeat fibres to pass through. A very important point is that every bar does its proportion of the work. The longest bars are only 9 inches long, and are effective from end to end, which is not possible in machines having long bars. This new refiner is now made in two sizes, one capable of passing 1,000 to 1,200 lbs. per hour, the other capable of passing anything up to 2,240 lbs. per hour. Other machines can be built to meet special requirements. Its high efficiency will be clearly understood when it is stated that the large size machine is more than equal to six ordinary 600-lb. hollanders, while the power required is only about one-fourth. A great saving of time and power is therefore easily obtainable.

The Advance Machine Co., Toledo, O., exhibited their glue heater for bookbinders use. The J. L. Morrison Co., Toronto, are also agents for that firm.

The Dominion Belting Co., Hamilton, manufacturers of "Maple Leaf" belting were represented, also the General Supply Co., Ottawa, mill supplies. F. W. Bird & Son, Hamilton, Ont., manufacturers of roofing, had a display. The Grenville Board and Pulp Co., Theroold, Ont., manufacturers of "pulp board" were also in evidence with an exhibit. W. J. Gage & Co., Toronto, manufacturers of stationery, made a tasty showing.



#### **CENTRIFUGAL PUMPS FOR PAPER AND PULP MILLS.**

In paper and pulp mills, centrifugal pumps of very simple construction have up to now usually been used. These pumps have a bad efficiency, and it is difficult to direct couple to electric motors, as the efficiency is never known with any degree of accuracy. Further the stuffing boxes wear the shaft out in little more than a year. As a consequence a lot of paper and pulp mills use plunger pumps, where centrifugal could advantageously be used.

Lately, the Canadian Boving Co., Ltd., 164 Bay St., Toronto, have placed on the market the "Victoria" turbo pumps, constructed for pumping the following:—All classes of pulps, water of every temperature even for boiler feeding, resin, size, acid, caustic soda, and for fire extinguishing purposes. Centrifugal pumps have many advantages over plunger pumps, there are no valves which are a permanent cause of trouble, no wear of plungers in stuffing boxes, no shocks or vibration in the pipes, they take little floor space and require small foundations. They are much cheaper than plunger pumps. Special advantages with the "Victoria" pumps are high efficiency during their whole life time—the plunger pumps show a good efficiency when they are new, but when the plungers get worn out, and the packing boxes have to be screwed hard on, or when the valves are worn out their efficiency will sink considerably. In the "Victoria" pump, the quantity of water delivered can be exactly calculated, the speed of the pumps can always be made so as to suit the speed of an electric motor for direct coupling, thereby saving belts, gearing, etc. They are easily dismantled, have no packing boxes, hence no wear to the shaft. The quantity of water or stock delivered can be regulated by the top valve, and the pump will run well. The runner in the "Victoria" pump can be constructed so that the quantity of water or pulp is nearly constant for various heads, they are, therefore, suitable for pumping stock from the stock tanks to the paper machines. Any thick stuff that can be pumped by a plunger pump, can also be pumped by a "Victoria" pump. The smallest size made for water pumping has a capacity of 60 Imperial gallons, and for pulp, 180 Imperial gallons per minute.



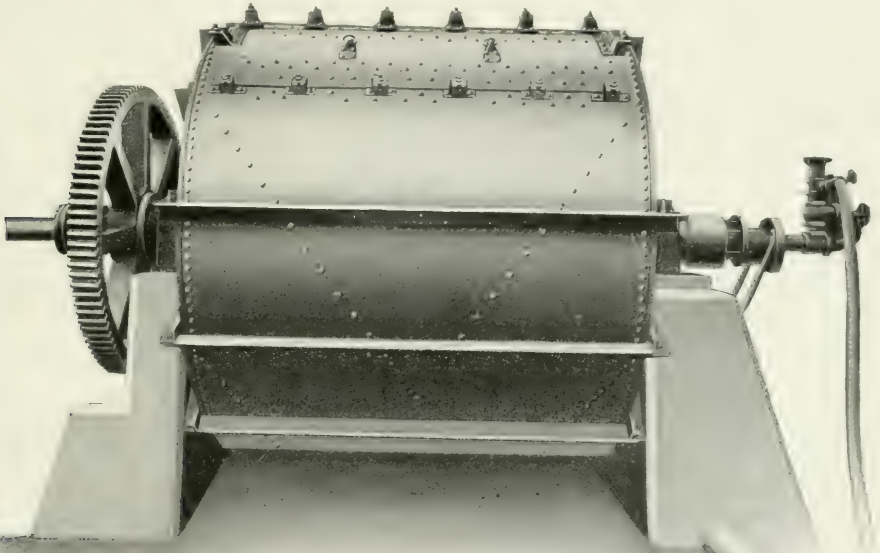
#### **BACHE-WIIG BARKING DRUM.**

The C. Bache-Wiig Barking Drum is 9 feet 7 inches diameter, by 9 feet long, built of heavy boiler plate steel with



flanged heads, all very firmly riveted together, the heads being riveted to massive hollow trunnion castings with journals  $14\frac{1}{2}$  inches diameter, which support the drum in bronze-lined bearings of extra heavy construction. Drive is by cast spur gears 79 inches in diameter, 7-inch face, and steel pinion with jack shaft and friction clutch pulley 48 inches in diameter by  $12\frac{1}{2}$ -inch face. The door, as will be seen by illustration, is secured to body of drum at twelve points, yet is loosened or tightened in

are no knives used, but that the principal of separating the bark from the wood is by water and friction, this, of course, insures to the operator every particle of wood there is in the material being treated. The shrinkage in quantity being only such percentage as the bark constitutes. This insures a saving over other methods on far sized wood, say eight to twelve inches, of 11 to 15 per cent. On slabs the saving is, of course, much greater, being 25 per cent. and on edgings the saving is the dif-



place by the manipulation of but three nuts. The entire body of the drum is strongly reinforced by angle and tee irons, the V-shaped rows of rivets as seen in illustration secure angle irons of a similar shape to inner wall of drum. These angle irons perform a very important work in removing the bark.

When in operation the drum is half full of water, heated with steam, same being admitted through one hollow trunnion and passing out through the other, taking with it the removed bark. As will be seen by the description given and illustration of this machine, there

ference in value of the material for firewood or pulpwood (less the cost of removing the bark which is approximately 25 cents per cord), as it is not practical to remove bark from edgings with any other method.

Another class of work on which this machine is capable of earning vast sums is in the handling of small round wood. Up to this time, as a general practice, that portion of the log less than 5 inches in diameter, and all the branches of whatever size have been left in the woods, this practice is credited with being a large factor in the disastrous

forest fires occurring from year to year as this material becomes dry during the summer after cutting and very inflammable. It being impossible to handle this wood at any value, it was, of course, quite the natural thing to do to leave it in the forest. The C. Bache-Wiig Bark-ing drum, however, changes this condition entirely as round wood as small as 1½ inches in diameter can be handled to advantage and with no waste of wood whatever.

As will be seen, the saving effected by this machine on round wood is one well worth while and such as no pulp mill operator can afford to ignore. Also that a pulp mill operator who has opportunity to use this machine on slabs or edgings can get much greater return on investment in these machines than is possible in any other department of their plant.

It will also be evident, even to the most skeptical, that very large returns can be had from investment by the reclaiming of small round wood, which heretofore has had no value for pulp making, besides which the safety of the forest from fires is materially increased by removal of this wood, which has heretofore been considered waste.

The cost of operation of this machine can be very definitely calculated, being confined practically to power required, 25 to 40 h.p. per drum, and actual labor used in serving them. The machine is of such construction, few and massive parts, that any repairs to same need not be expected until after long service, during which time it will have earned its cost many times over, if given the volume of work to do, of which it is amply capable.



The Moore & White Company, Philadelphia, favor us with a copy of their latest catalog. This firm are well known as builders of paper machines for the highest grades of paper, and makers of all grades of box boards, roofing, felt and binding papers. The present catalog gives a full illustrated description

of Bellmer's patented bleaching process, also of "M and W" Pulp Thickeners or Worm Washers. They manufacture several other patented specialties.



(Continued from Page 318.)

passion, quiet, but deep, which characterizes the public and private discussions here of the reciprocity agreement.

I cannot forbear adding that when viewed in the light of the immense and far-reaching political issues involved in reciprocity, the arguments advanced by Sir Wilfrid Laurier in favor of the agreement seem trivial and sordid to a degree. His arguments would lead one to infer that the sole object of a nation's policy is the multiplication of dollars. By a mysterious dispensation of Providence he appears to see, as in a vision, cupidity and competition furthering the ends of both prosperity and peace.

Let me say in conclusion that I believe, and many here share my belief, that should reciprocity be agreed to by Canada, Washington will have Ottawa completely under its thumb in less than a decade. Taking everything into consideration nothing else can be expected. "Ten to one is too great odds." The Canadian tariff will be framed at the capital of the United States, lowered or raised in this or that particular at the dictation of the American Government. Soon commercial and political matters will be so completely under American dominance that annexation will be inevitable. You have to mix with the people to realize the magnitude of the popular interest taken here in reciprocity as the prelude to annexation.

Canada is indeed "at the parting of the ways." As I remember my dear native land it seems to me incredible that she should risk political and moral obliteration for the sake of a few dollars. With the passing of Canada as a political entity the British Empire will be riven asunder.

J. C. T.

Chicago, Ill., Sept. 12, 1911.

**KRAFT PULP AND PAPERS.**

(Continued from last month.)

At this point the pure sulphate process by which the lye contains twenty to twenty-five per cent. of effective sodium sulphide ( $\text{Na}_2\text{SO}_4$ ) receives each time an addition of sodium sulphate. The sulphate-soda process is supplemented by the addition of sulphate of sodium ( $\text{Na}_2\text{SO}_4$ ) and carbonate of sodium ( $\text{Na}_2\text{CO}_3$ ).

The extremely unpleasant odors resulting from the sulphate process call for the consideration of the important question: "How far is the neighboring population annoyed by them?" To what extent the processes lately proposed for the neutralization of the gases (for instance, the method of Dr. Schwalbe, of Darmstadt, for the oxidation through nitric oxides) will prove successful, only the future will teach us.

Besides constant supervision and regulation of the concentration of the lye, as well as of its composition as to caustic soda, carbonate of soda, sodium sulphides and other sulphides which may arise, it is of the greatest importance to have a standard measure of strength of Kraft cellulose produced.

The Hollander work must let the pulp remain as "roesch" as possible, and not make the fibres too shortened. Previous treatment in the edge-runner is recommended. The desired effect is the subsequent splitting or decomposing of the fibres into fibrils, which if possible is to be carried out by crushing. In the machine work the chief object is the attainment of a high degree of extension in accordance with which purpose the joints of the paper machine are to be suitably dealt with.

Kraft papers are offered machine finished, smooth on one side or smooth on both sides. Even if at first the attainment of the same gloss as with cellulose papers was not found practicable, highly finished Kraft papers are now successfully produced.

It has been estimated that 10,000 tons of Kraft paper replace in consumption

15,000 to 20,000 tons of paper made from sulphite cellulose.

Dr. Emil Heuser, writing on the manufacture of Swedish Kraft papers, states that the Swedish mills use a cheap but very suitable species of spruce wood known by the name of "gran," which yields tough, but at the same time soft and pliable, fibres. In Germany the Swedish wood is employed as well as native varieties of spruce and pine.

The process is essentially the ordinary sulphate soda process of wood digestion; special attention, however, being paid to the strength and composition of the lyes and the time pressure of the cooking. With a view to the economical recovery of the soda, strong lyes are employed, having a density of about 12 degrees Beaumé at a temperature of 50 degrees C. On this account the time and pressure of the digestion process must be restricted in order to avoid making too soft and weak a pulp. The composition of the lye and conditions of boiling are best ascertained by experiment for each type of wood. The strength of subsequent lyes is then adjusted by titrations and analyses in order to avoid irregularities in the product. Estimations of total alkali and degree of causticity are made for each batch.

The complete analysis of a liquor employed for boiling "Kraft" cellulose gave the following results per litre of lye:—sodium carbonate, 7.48 grammes; caustic soda, 61.80 grammes; sodium sulphide, 25.12 grammes; sodium sulphite, 3.78 grammes, and sodium sulphate, 4.52 grammes. Particular stress is laid on the presence of a high proportion of sodium sulphide, since this alkali is credited with the property of preserving the softness and pliability of the fibres. A certain proportion of a used black lye is frequently mixed with the fresh lye in order to increase the brown color of the pulp. This has the disadvantage of weakening the cooking lye, and consequently many mills prefer to color the pulp in the beaters. The wood is cooked under a pressure of eight atmospheres

(about 110 pounds per square inch), which pressure is maintained for about two hours.

The product is washed for a shorter time and with less water than in the case of ordinary wood pulp, and is then koller-ganged before it passes to the beating engines. In the beaters a certain amount of the brown used cooking lye is added for coloring purposes, about forty litres being used for three cwt. of pulp. Sulphuric acid is then added to partially neutralize the alkalinity of the brown lye, care being taken not to use sufficient to make the contents of the beater acid. Then about two per cent. of rosin size is put in and the whole is then made acid with sulphate of alumina. In this way the brown coloring matters of the lye are precipitated and fixed on the fibres, and the resinous matters dissolved in it are utilized as sizing agents. Beating is carried out in such a manner as to give a "wet beaten," but still a very long fibred pulp.

A noted French papermaker says:

During the years 1887 and 1888 in the course of a series of travels in the paper mills of Europe, and principally in those of Austria, Germany, Russia and Scandinavia, I published a number of circulars on the manufacture of cellulose, and in particular on the sulphate of soda process, and the means of obtaining from this pulp an exceptionally strong paper. The manner of working which I at that time endeavored to promulgate has since been, at least partly, applied, and the result has been the so-called Kraft paper, so greatly in request at the present time, seems likely to replace all other sorts of wrappings. This will more particularly be the case, when the makers of Kraft have succeeded in making a sheet that shall be thinner, more uniform, better impermeabilized, or water-proofed, in fact, when these papers, in every respect, have the fine appearance they should have, and above all, when they have received the special sizing made and composed for these sorts.

According to my personal experience, Kraft can be obtained in several ways. That employed in Sweden is based on the ordinary so called "sulphate process," with a minimum time of cooking in the digester. This shortness of cooking may vary according to the nature of the wood employed, and should be more reduced in the case of treating resinous wood of a soft kind, for it must be borne in mind that botanists distinguish from eight to ten different species of coniferous wood, and each one must naturally be treated according to its organic constitution. We have the fir (*abies*), the pine (*pinus*), and the larch (*larix*). The *abies taxifolio* is soft. This wood is white, it is not rich in rosin, and used for making sulphite cellulose, gives a beautifully white pulp. In the varieties of *pinus* we have the *pinus laricio*. The *pinus mugelii* and the *pinus silvestris vulgaris*, very rich in rosin; the wood of the latter is hard and close, and for these reasons should be particularly adapted for making Kraft. The *pinus maritima* can be used for the same end.

Whatever the varieties of resinous wood I have had the opportunity of using, I have always noted that too high temperature should not be used, nor the time of cooking be too long, for obtaining a fibre suitable for Kraft. The principles above-mentioned for the choice of the wood and the length of the operation, lead me to say that for making Kraft it is well to be able to dispose of a sulphate cellulose plant. As all are aware, the fibre necessary for Kraft papers demands a more powerful method of beating than in the case of ordinary cellulose. To obviate this drawback, this fibre should not be triturated in beating engines, whose cylinders are furnished with metal knives. It is indispensable, for this trituration, to use edge-runners, or koller-gangs, whose periphery turns on the horizontal bedplate, the surface of which is furnished with flat metal teeth. These teeth do not chop the wood fibre as do the knives of



the beater, they crush the wood by a kind of mastication, and it is the latter that imparts to the hard fibres of the Kraft their great strength. Another advantage of this mode of trituration is that the fibres are not drowned in the water, as in the beating engine, and there is thus no floating washing that can destroy or weaken the rosin gum that may still remain in the wood; it is this same gum, inherent to resinous wood, only slightly diluted, by reason of the weak cooking, which gives to Kraft paper its characteristic strength, and constitutes one of its merits. This bedplate with flat teeth adapts easily to all existing koller gangs or edge-runners, and the service that it does is incalculable, not only in the case of Kraft, but likewise in that of all paper-making materials. It is principally this toothed bedplate that allows us to boil the wood with a low temperature and at the same time to obtain a long and pliable fibre.

It is frequently possible, in a paper mill, to annex a plant for making sulphate cellulose, in particular where ground can be disposed of close to the mill. I have set up such a plant, for a limited production, it is true, but which has given sufficient pulp for improving the quality of the paper previously made. This Kraft pulp gives body to all the fibres with which it is mixed, whether ground wood, cooked without chemicals, straw, waste paper, etc. Kraft pulp costs infinitely less to make than does any other sort of cellulose. A sulphate plant suitable for making Kraft pulp is relatively inexpensive, compared with the cost of a sulphite plant. The outlay for the raw material is likewise smaller, the labor is less, and for those who possess a recovery and calcining furnace contiguous, as would be those who make esparto or straw pulp, the cost in coals is insignificant, because this furnace feeds itself with the combustible resinous matter that remains in the waste waters, and proceeds from the cooking of the wood.

It is a very difficult matter to find sulphate cellulose suitable for making real

Kraft in conditions of perfect regularity. The pulp obtained from abroad, such as proceeds from the mill, is just as it happens to be, good, bad or indifferent; it should, therefore, not be a matter for surprise if Kraft papers, made from such pulps, whose quality is variable and uncertain, do not answer to the requirements of the purchaser.

The difficulties formerly attached to the manufacture of sulphate cellulose have frequently been exaggerated, and have above all been exaggerated. Much has been said of the vast amount of motive power required for tritulating Kraft pulp; we have, nevertheless, now demonstrated, that if vertical rolling stones, otherwise denominated koller gangs, or edge-runners, are used, whose bedplate is furnished with flat metal teeth the power required is considerably reduced and is rather inferior to that of an ordinary engine, beating cotton rags.

It is frequently asked me whether it would be possible to manufacture a cellulose for making Kraft in a mill already constructed for sulphite? To this I have been able to reply affirmatively, notwithstanding that there is nothing in common between the two systems, apart from the manner of preparing the wood before cooking. In a sulphite mill it is advantageous to annex a sulphate plant, because the residuary liquors proceeding from the manufacture of sulphite cellulose, modified after extraction from the digester, are of great use for preparing a fresh cellulose, possessing the properties requisite for making Kraft. The sulphurous agents contained in the waste liquors of sulphite have a potent disencrusting action on the resinous matter contained in the wood. The question of the digesters, whose construction differs in the two methods, has no appreciable importance, the modification requisite in the sulphite digesters is a simple inward arrangement by means of which the wood can be cooked with sulphite or with sulphate alternatively. In consequence of this, a plant disposed for sulphite pulp can likewise make sulphate,

without destroying what exists, and merely adding what is wanting.

The great existing difficulty is not among those referred to, but rather in the want of initiative on the part of many among those whose interest it would be to do what would be necessary for making or improving a product, whose success is beforehand assured, as is the case with Kraft papers. Under the pretext of being conservative, it is not well to keep, to old customs, when something new appears which it would be in our interest to take up, nor to put off doing so until the products of our competitors have thrust themselves on the market, to our prejudice.



#### **PAPER STRENGTHENED BY TWINE OR THREAD.**

Heretofore paper was reinforced by fabrics in such a way that finished webs were used as inserts between two sheets of paper about to be pasted together. The paper with inserted threads, however, on which a patent has been granted to Alex. Wendler, is manufactured by having a special weaving apparatus weave the threads between the two sheets of paper which are being pasted together. Paper strengthened in this manner combines the advantage of ordinary paper and jute fabrics when used for packing or wrapping purposes, and is expected to create new fields for the consumption of paper as a substitute for such fabrics. According to the nature of the threads and of the paper, the field of application for paper of this kind is quite large. Paper into which heavy yarns have been inserted is used chiefly as packing paper or for the manufacture of paper bags; paper with fine yarns for the manufacture of envelopes and bags, for maps, towels, window shades, blue print paper, oil paper, etc. Roofing paper as well as cardboard paper are stiffened and rendered

more substantial by the insertion of wire, which makes it possible to render cardboard made of cheap raw material serviceable for better purposes. The weaving apparatus operates automatically, and as the wires or threads may be inserted at any desired distance from each other, the goods can be made to meet the exact requirements expected of them. Tests made in cement factories with bags made of such paper are said to have proven very successful. Such paper bags, however, will also prove quite suitable for other lines. In connection with flour and other provisions the paper bag offers the advantage of greater cleanliness, as compared with the jute bag, even the best grades of which are anything but waterproof. Undoubtedly it will be possible to use it also for filling and coloring material employed in the paper industry, as in this manner the possibility of contamination of the kaolin, talcum, etc., with jute fibres or dirt getting through the meshes of the bag is done away with. It is true the employees have to be educated to treat a bag made of this kind of paper more carefully than jute bags; the proverbial patience of the paper must not be put to too severe a test. The annual consumption of large paper bags in the United States exceeds 150 million bags, and is constantly increasing.—*Papier-Zeitung*.



The Macleod Pulp Co. at Milton, near Liverpool, N.S., are putting in a new heating engine and twenty new dryers, which will practically double their output of pulp board and sheathing. The company are now arranging a reorganization to acquire new capital to extend the business, which has been very successful. The report circulated in the province that these extensions were due to reciprocity was, of course, a fairy story.

# Pulp and Newsprint in the United States and Canada

Report of the United States Tariff Board on Costs of Production

(Continued from last issue)

That labor efficiency and labor cost per ton of product are almost entirely dependent upon equipment is evident. It is the paper machines (called Fourdrinier) which control the final question of efficiency of equipment. Efficiency is studied on the basis of the speed and capacity of machines, the tonnage capacity of the machines in 24 hours, and the number of men required to man the machine; from this is derived the total one-man hours on each machine each day (of 24 hours) and the time cost in one-man hours per ton of product, and finally the machine labor cost per ton of paper produced.

has been taken as the standard by which to judge of efficiency of equipment. These machines are analyzed in the following table by capacity of machines, by speed as expressed by feet per minute, by width of trimmed roll, and by number of years since installed. For Canadian machines the facts are stated in simple averages or percentages for all machines.

The American machines are shown, first, by simple averages and percentages as is done with Canadian machines; second, in three groups. Group A represents 56 per cent. of all the American machines reported by the 38 paper mills

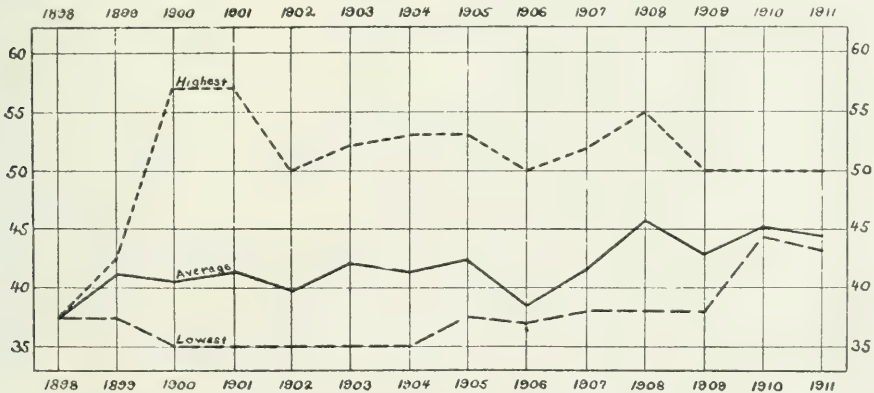


Chart 1.—Price of News Print in New York City, charged by mills in Group 1.

In view of the foregoing, it becomes important to glance at the equipment of plants with a view to studying, first, the comparative efficiency of those in the United States with those of Canada and then comparative efficiency of machines within the United States. Most of the Canadian mills are new. The Fourdrinier, or paper machine, being the key to capacity and efficiency in a paper mill,

reporting. Group B represents 44 per cent of all machines reported. Group C consists of the machines in five of the best paper mills in the United States so located as to be near the belt of competition with Canadian mills, and forming a natural subdivision or grouping of American mills.

The division between Group A and Group B was made primarily to show the

proportion of American machines (Fourdriniers) superior or inferior to the Canadian average. While the basis of the table is the machine (Fourdrinier) rather than the mill or plant, yet the inadvisability of separating the machines in a mill (for, after all, the mill is the industrial unit of which the machine is the efficiency measure) became apparent. Hence, each group represents mills as wholes, even though one or more machines might be found in a mill, which as machines might entitle them to different grouping.

The Fourdrinier machines in both countries were all manufactured in the United States. In the matter of capacity per machine in 24 hours the Canadian

machines show an average of 31 tons; the average of all American machines reported is 27.8 tons; those in Group A, 32.4 tons; Group B, 22.2 tons; while the average per machine in the best mills, or Group C, is 40 tons of paper per machine each 24 hours.

In Canada, 18.7 per cent. of all machines have a productive capacity of 40 tons or over per day of 24 hours. In the United States 17 per cent. of the machines taken as a whole, have similar capacity. In Group A, 27.3 per cent.; in Group B, 3.8 per cent.; while in Group C, 45.5 per cent. of all machines have a capacity of 40 tons or over. Taking as a basis machines with a capacity for production of 30 tons or over per day, we find that

**Table 18.—News-print-paper machine equipment in the United States and Canada.**

	Canadian mills reporting.	American mills reporting.			
		All mills.	A (56 per cent. of all machines).	B (44 per cent. of all machines).	C (5 best mills).
Capacity of machines:					
Average in 24 hours .....tons.	31.0	27.8	32.4	22.2	40.0
Greatest in 24 hours .....do..	50.0	50.0	50.0	41.0	50.0
Least in 24 hours .....do..	10.0	5.0	5.0	12.0	25.0
Per cent. 40 tons and over .....	18.7	17.0	27.3	3.8	45.5
Per cent. 30 tons and over .....	62.5	41.5	63.6	13.5	86.4
Per cent. 15 tons and under .....	6.2	11.9	9.1	15.4	0.0
Speed of machines per minute:					
Average number of feet of paper....	480.0	465.6	499.3	422.7	537.0
Per cent. 500 feet and over .....	68.7	38.1	57.6	13.5	90.9
Per cent. less than 400 feet .....	6.2	20.3	10.6	32.6	0.0
Width of rolls, trimmed:					
Average number of inches .....	121.0	109.9	119.2	98.1	140.0
Per cent. with rolls 120 inches and over .....	62.5	34.7	48.5	17.3	86.4
Per cent. with rolls less than 100 ins.	12.5	36.4	25.8	50.0	13.6
Years installed:					
Average number of years installed..	7.2	12.7	10.0	16.6	8.1
Per cent. of machines installed 15 to 30 years. ....	6.2	34.7	13.6	61.5	9.1
Per cent. machines of American manufacture. ....	100.0	100.0	100.0	100.0	100.0



62.5 per cent. of all Canadian mills reporting fall within this class, while 41.5 per cent. of all American machines, 63.6 per cent. of the machines in Group A, 13.5 per cent. of those in Group B, and 86.4 per cent. of those in Group C come within this classification.

If we look now for the smaller machines, of 15 tons and under, Canada has 6.2 per cent.; the United States, taking all machines reported, has 11.9 per cent.; Group A has 9.1 per cent.; Group B, 15.4 per cent., while in the best mills none at all are found.

By speed of machines in feet per minute is meant the number of feet of paper in a sheet the width of the roll that will

422.7 feet; and for the machines found in the five best mills 537 feet per minute.

In Canada 68.7 per cent. of all reported machines have a speed rate of 500 feet or over per minute; in the United States 38.1 per cent.; in Group A, 57.6 per cent.; in Group B, 13.5 per cent. of machines have such speed rate, while in the best American mills 90.9 per cent. of the machines come within this classification. The percentage of machines having a speed of less than 400 feet a minute is 6.2 for Canada; 20.3 per cent. for the United States as a whole; 10.6 per cent. for Group A; 32.6 per cent. for Group B; while none are found in Group C.

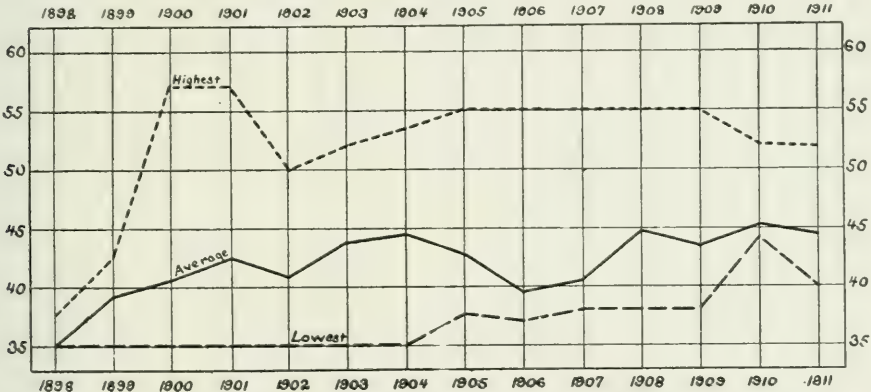


Chart 2.—Prices of News Print in seven largest cities in eastern territory, charged by mills in Group 1.

pass through the machine and come out in a finished condition in one minute. To say that a machine has a width of trimmed roll of 140 inches and a speed of 500 feet per minute is to say that a continuous sheet of paper 140 inches wide is coming out of the machine at the rate of 500 feet a minute. Of course, this width of trim and speed in feet per minute determines the daily tonnage capacity of the Fourdrinier machine.

The average speed in feet per minute of all reporting Canadian machines was 480 feet; of all reporting American machines 465.6 feet. The average for Group A is 499.3 feet; for Group B,

The meaning of width of trimmed roll has been explained. The average width for Canadian mills is 121 inches; for all American mills, 109.9 inches; for Group A, 119.2 inches; for Group B, 98.1 inches for Group C it is 140 inches. In Canada 62.5 per cent. of all machines reporting have a width of trimmed roll 120 inches and over; in the United States 34.7 per cent. fall within this classification; in Group A, 48.5 per cent.; Group B, 17.3 per cent.; while in the best mills 86.4 per cent. of the machines have a width of roll 120 inches and over.

Coming to the narrow rolls—less than 100 inches wide—we find this classifica-

tion covers 12.5 per cent. of Canadian machines, 36.4 per cent. of all reporting American machines, 25.8 per cent. of all machines in Group A, 50 per cent. of machines in Group B, and 13.6 per cent. of Group C. Canadian machines have been installed an average of 7.2 years; the average for the United States is 12.7 years; for Group A, 10 years; Group B, 16.6 years; while in Group C, 8.1 years. In Canada 6.2 per cent. of machines have been installed from 15 to 30 years; in the United States this percentage is 34.7; in Group A, 13.6 per cent.; in Group B, 61.5 per cent.; in Group C, 9.1 per cent.

of all machines reported) presents a condition which would force them, if obliged to meet really extensive competition from Canada, greatly to curtail other expenses, or greatly increase investment for improvement of equipment, or shift to other kinds of paper.

#### Efficiency of Labor in Canada.

Canadian paper and pulp mills are equipped, as a rule, with the latest and most improved machines made by American manufacturers in the United States.

The general managers and superintendents are, for the most part, Ameri-

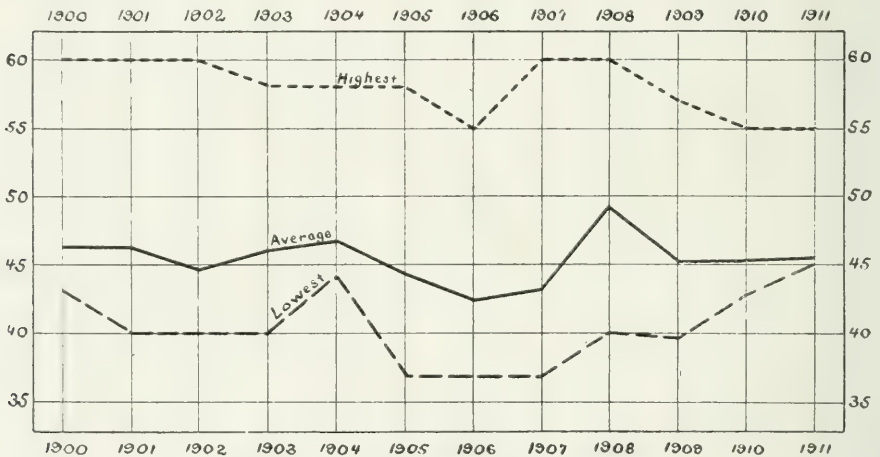


Chart 3.—Prices of News Print in eastern territory, outside of seven largest cities, charged by mills in Group 1.

To the question, then, how far American mills are on an equal basis for competition with the Canadian mills in the matter of equipment, the answer seems to be that the total average of equipment and efficiency is slightly better for Canada than for the United States; that Group C, of domestic machines (five best mills), shows greatly superior efficiency to the Canadian in all essential features; that Group A (56 per cent. of all machines reported) shows practical equality with the efficiency of equipment in Canada; while Group B (44 per cent.

of wide experience. Those who are Canadians by birth are men who, like the Americans, have had long years of training in American paper and pulp mills. The skilled men, the machine tenders, and other hands, who operate the paper machines are, as a rule, Americans brought from the United States for the purpose. They are paid American rates of wages, although in several instances the rates are for 12-hour shift, instead of for an 8-hour shift, as in Eastern United States. Excepting for the comparatively small number of

skilled men necessary to operate the paper machines and the mechanics employed on repairs, the great majority of the men employed in the paper and pulp mills are classed as unskilled, and receive the pay of unskilled laborers. A study of the comparative wage tables in the report shows that the average rates of pay of unskilled men are lower in Canada than in the United States.

It would seem then that with modern mills, American machinery, American-trained managers and superintendents, and American skilled operatives, together with lower rates of wages for unskilled men, the Canadian manufacturing labor cost per unit of production in the modern and well-equipped mills of Canada would be considerably lower than in the modern and well-equipped mills of the United States.

The facts show, however, that the Canadian labor cost per ton of news-print paper is only slightly lower on the average. That 41.5 per cent. of the tonnage reported in the United States carries a manufacturing labor cost of less than \$3 per ton, while 54.7 per cent. in Canada falls under \$3. The total average for the United States is \$3.27 as against \$3.19 in Canada, notwithstanding Canada's advantage in average equipment. This indicates that there is greater efficiency and experience in the first-class mills of the United States.

With the exception of the machine tenders the labor employed in Canadian mills is French-Canadian. The mass of French-Canadians have been workers on the farm and in the forests and almost entirely out of touch with industrial life in shops, mills, or factories.

#### Prices of News-Print Paper.

The price of news-print paper to the consumer differs according to the distance from the mill. The country may be divided roughly into five zones, each subject to a distinct price quotation as follows:—

(1) Eastern, including the territory from the Canadian border to the Potomac and from the Atlantic Ocean as far west as Buffalo and Pittsburg. It includes the New England States, New York, New Jersey, Pennsylvania, Delaware, Maryland, and the District of Columbia. Within this zone the freight rate for paper does not exceed 18 cents per 100 pounds, and the price within this territory is quoted, as a rule, irrespective of the distance of any particular point from the mill. Prices are practically the same for the seven largest cities; namely, New York, Boston, Philadelphia, Baltimore, Washington, Pittsburg, and Buffalo. In the smaller towns in the same territory the prices are somewhat higher, owing to the fact that the orders are smaller, the papers in those towns having a much smaller circulation. The smaller papers in New York City are largely supplied by jobbers and are charged prices substantially the same as those paid by the papers in the smaller towns purchasing direct from the paper mills.

(2) Middle Western or Ohio zone: This includes the States of Ohio, Indiana, Illinois, and the City of St. Louis, Mo.

Michigan though geographically belonging to the same group stands by itself in the matter of paper prices. Owing to its own mills and its proximity to the Canadian border it enjoys a freight rate lower even than many points in the Eastern States, and prices in that territory are therefore somewhat different from those in the other States.

(3) Southern zone, including the States of North Carolina, South Carolina, Georgia, Alabama, Florida, Mississippi, Louisiana, and Tennessee. The prices in this territory differ considerably according to distance and the size and desirability of the contract.

(4) The Pacific coast.

(5) States between the Mississippi River and the Rocky Mountains, and the Southwestern States. Most of the papers

in this territory have a small circulation, and as a rule buy their paper in sheets from jobbers in Chicago, but few of them being supplied with paper rolls from mills. Prices in this territory are therefore higher than in the others and show a great variation.

The following tables show the course of prices in various centres of the United States. The figures were obtained from the original contracts on file in the offices of the various paper mills examined by the board, and represent in each case the highest, lowest, and average price in each commercial centre for the corresponding year. In analyzing the prices of the different mills it has been

year 1900 was marked by the announcement on the part of a number of mills of a new price policy, namely, the discontinuance of long-term contracts and the substitution of the annual contract instead. The change in the contract policy is reflected in the set of highest prices, which, as will be seen from the table, rose from \$37.50 in 1898 and \$42.50 in 1899 to \$57 in 1900, which was reduced to \$50 in 1902. Between 1902 and 1908 the highest price for New York fluctuated between \$52 and \$55, dropping to \$50 in 1909, at which it has remained since.

The average price was obtained by dividing the amount of the total sales by the total tons sold during each year. The

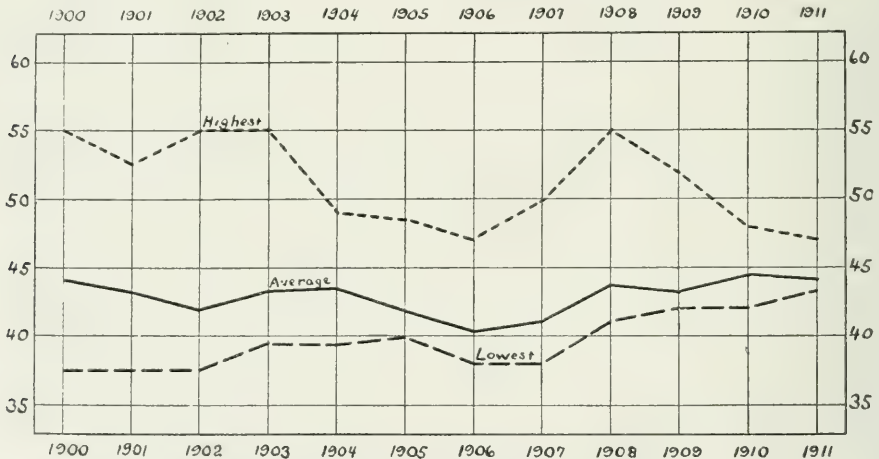


Chart 6.—Prices of News Print in five largest middle western cities.

found that they naturally fall in two groups, the prices in each group being sufficiently uniform to represent a distinct set of price quotations. The relative importance of each group will be seen from the tons of paper sold by each.

Taking the eastern territory we find that in the city of New York the lowest price charged by the mills in Group I was \$37.50 in 1898, which was reduced to \$35 in 1900, and remained unchanged during the life of some of the old long-term contracts until 1905, when it was raised to \$37.60, until by graduated increases it was advanced to \$44.20 in 1910, dropping in 1911 to \$43.20. The

price shows a gradual rise, with fluctuations up and down, from \$37.50 in 1898 to \$44.51 in 1911.

The summary for the seven large cities shows a movement very close to that for New York. The smaller eastern cities show a higher level of prices, but a much smaller fluctuation over the ten years. The lowest prices start with \$43 in 1900, dropping to \$40 the following year, rising to \$44 in 1904, dropping again to \$37 in 1905, and, with a few fluctuations up and down, reaching \$45 during the year 1911. The highest prices fluctuate between \$60 in 1900 and \$55 in 1911. The average price is much closer to the



lowest than to the highest, showing that the higher set of prices represents a much smaller tonnage than the lowest. It is also noteworthy that the average price for the smaller cities shows practically no change in the prices during the 10-year period, and, if anything, a lower level at present as compared with the beginning of the decade, the price in 1900 being \$46.38 and \$45.39 in 1911. This is obviously explained by the fact that the low prices shown in the earlier period are due to the long-term contracts made with the metropolitan dailies.

In weighing the relative importance of the two sets of prices it is well to note that the tonnage of all the small towns in the eastern territory is much smaller than that in the seven large cities in the same territory, being 22,005 tons for the former as against 198,133 for the latter in 1911. With the exception of the year 1900, the ratio between the tonnages of the two groups of cities in 1911 is the smallest during the decade, rising to more than one-third in other years during the decade.

Another table shows the course of prices in New York City and five large cities of the eastern territory charged by the mills in Group II. The price quotations in Group II show a considerably lower level of prices in the lowest as well as the highest quotations. Thus the lowest price for the same cities in Group II for 1901 was \$34 as compared with \$35 in Group I. The price was raised in 1907 to \$37 as compared with \$38 in Group I, and remained at \$37 until 1910, when it was \$44 in Group I. It rose to \$41.80 in 1911, during which year it for the first time exceeded the corresponding price in Group I, where it was \$40.

The difference between the highest prices in the two groups is much more marked than between the lowest. Thus the highest price in 1901 in Group II was \$45 as against \$57 in Group I. It rose to \$48 in 1903 as against \$52 in Group I, dropping to \$46 in 1905 as against \$55 in Group I, and had a further drop in

1906 to \$42, as compared with \$55 in Group I. In 1907 it rose to \$50 as compared with \$55 in Group I, and gradually declined to \$45 in 1911 as compared with \$52 in Group I. The average price was likewise at a lower level than in the first-mentioned group, measuring a difference of about \$5, but in 1911 the price rose to \$43.90, while the price in Group I declined to \$44.31, the difference between the two thus being reduced to but 41 cents a ton.

As to the course of prices charged by the mills represented by Group I in the Middle Western cities, Chicago, St. Louis, Indianapolis, Cincinnati, and Cleveland, as well as the summary of the five cities, and also the prices in New Orleans covering the last decade, the general tendency of the prices in this territory is substantially the same as in the eastern territory. This can be seen upon comparing the curves representing the fluctuations in prices during the period in the respective territories. The prices in New Orleans, on the whole, show a much smaller fluctuation during the period, the average price being as a rule, somewhat higher than in the eastern territory, the difference representing principally the additional freight expense.

Another table in this report shows prices in 1910 charged by Canadian paper mills for paper exported to the United States. These prices were obtained from the consular invoices sworn to by the exporters at the United States consulates in Canada. In another there are two sets of prices, one f.o.b. mill in Canada, the other prices delivered in the various cities in the United States, including freight and duty. These figures, however, represent a small percentage of the total imports and therefore must be treated with caution. It will be seen that the average f.o.b. mill price for the five cities of Boston, New York, Philadelphia, Pittsburg, and Buffalo was \$39.06, and for the four Middle Western cities of Chicago, St. Louis, Cincinnati,

and Cleveland \$36.51. The price, however, when delivered in the respective cities, after duty and freight has been added, is fully as high if not higher than the corresponding average prices charged by United States mills.

(To Be Continued.)



### NEW INCORPORATIONS.

Pretty's Timber Exchange, Ltd., Vancouver, B.C.; capital \$5,000,000. To conduct a general lumbering business and to build and operate pulp and paper mills.

British Columbia Engineering and Irrigation Co., Ltd., Vancouver, B.C.; capital \$100,000. Among other things to manufacture and deal in wood-pulp, paper, cardboard and millboard.

Ain River Development Co., Ltd., Prince Rupert, B.C.; capital \$100,000. To carry on business as timber merchants, sawmill and pulp mill proprietors and to engage in various other activities.

The De Isle Advertising Specialty Co., Ltd., Deschambault, Que.; capital \$75,000. General publicity and advertising business, including stationery, printing, and publishing. Incorporators named are A. Galipeault, K.C., and three clerks, all of Quebec city.

Alex. Cowan & Sons, Ltd., Edinburgh, Scotland; capital £450,000; have been authorized to carry on business in British Columbia as manufacturing and wholesale stationers, paper dealers and printers. The company's office in Canada is in Vancouver, and Edwin Bull, barrister, of that city, is attorney.

The Kennedy Construction Co., Ltd.; capital \$250,000. To manufacture and deal in timber, lumber, wood and pulp.

Incorporators are James Kennedy, of La Tuque; C. D. French, of Foster; St. George Harvey, of West Shefford, contractors; and G. A. Campbell, Montreal, advocate. All are resident in Quebec province.

British and Colonial Press, Ltd., Toronto; capital \$50,000. To receive and distribute news and to print, publish and sell newspapers, books, etc. A. C. Batten is chief incorporator.

Riggs-Higgins Co., Ltd., Vancouver, B.C.; capital \$10,000. In pursuance of an agreement entered into between the members of the firm of Riggs & Higgins to engage in the manufacture of pulp and paper.



### AMOUNT OF WOOD FOR PULP.

Hardy S. Ferguson, who was chief engineer of the Great Northern Paper Company for many years, but is now a consulting engineer at 200 Fifth Avenue, New York, gives the following figures as to the amount of wood required to make one ton of newspaper:—

#### Assumptions.

1. One cord of wood will yield 1 ton air dry ground wood pulp.

2. Two cords of wood will yield 1 ton of air dry sulphite pulp.

3. In the paper mill 2 per cent. of the sulphite is wasted.

4. In the paper mill 8 per cent. of the ground wood is wasted.

(a) Paper containing 25 per cent. sulphite. One ton paper requires— $25/96 \times 2 + 75/92 \times 1 = 1.32$  cords.

(b) Paper containing 22½ per cent. sulphite. One ton paper requires— $22.5/99 \times 2 + 77.5/98 \times 1 = 1.30$  cords.

(c) Paper containing 20 per cent. sulphite. One ton paper requires— $20/98 \times 2 + 80/98 \times 1 = 1.28$  cords.

## Montreal Pulp and Paper News

(Special to Pulp and Paper Magazine.)

September 15th, 1911.

The paper trade of Montreal continues to take a most active interest in the reciprocity proposals. Speaking on this subject the other day, a paper manufacturer made the claim that the adoption of reciprocity would kill the manufacture in Canada of book paper and cheap writing paper. It has been agreed to take off the duty on paper costing less than four cents a pound, which includes these two grades. There are mills which he claims would be rendered quite valueless by reason of this duty being taken off, because they could not compete with the big American mills which have a larger output and a larger market.

### Danger of Reciprocity.

He said, "People say: Why don't you build bigger mills and compete with the American mills? Suppose we did, we would be dependent on the American market, and if the Americans cut off reciprocity at any time, the mills which had been built larger to meet the American competition would be ruined. To my mind, if reciprocity will follow there can be no protection for our paper industry unless reciprocity develops into a close commercial union.

"Reciprocity in the meantime, will turn the market for book paper and cheap writing paper right into the American mills, as the Canadian mills have a smaller equipment. The men employed in these mills at Windsor Mills and elsewhere, would be largely thrown out of employment or would leave for the United States.

"So now we are facing this alternative: either lose our market under reciprocity or else build larger mills to compete, which will be in jeopardy at any moment that reciprocity is withdrawn.

"Our Canadian market in this line of writing and book paper is getting better and better, and it would soon have increased sufficiently to warrant our building larger mills. Reciprocity will wipe out a growing industry."

Another interview obtained upon the subject, taking a somewhat different view, was as follows:—

"One feature of the reciprocity agreement is the admission of Canadian pulp and paper free into the States, provided the wood entering into its manufacture has not been subject to any export taxation. This, in Quebec and Ontario, bars wood cut on Crown lands, but applies to that cut on private lands. As a natural consequence, these lands have already experienced a sharp rise in value, which is likely to increase unless the provincial government modify their Crown land restrictions.

"Already large areas have been taken up by American paper interests near Ottawa and along the St. Maurice, and it is understood that representations will soon be made to the Quebec Government regarding the investment of many millions, if the export tax is removed.

"One proposition involves the expenditure of \$30,000,000 for the construction of mills, waterpowers, etc., in Quebec, to manufacture news print, cardboard, and similar products, also chemical pulp for further manufacture into higher grades of paper.

"One item of this proposition involves the erection of a \$500,000 mill on the St. Maurice, to employ 3,000 men.

"All this capital, it is understood, is ready for immediate investment, though most of it will await the decision of the provincial government on the Crown lands timber question."

### Laurentide Matters.

A pulp and paper "melon" was cut in Montreal recently, showing that the industry is by no means tottering to its

fall. The "melon" referred to was in connection with the Laurentide Paper Co., each shareholder receiving a bonus of 100 per cent. of the stock held by him.

The plan followed was to incorporate a new company with a larger capitalization and to offer two shares of stock in exchange for each share of stock held in the old company. The name of the old company was Laurentide Paper Co. and that of the new will be the Laurentide Company, Ltd.

The following were the securities of the old Laurentide Paper Co., Ltd.:

	Authorized.	Issued.
Common .....	\$3,800,000	\$2,705,600
Cumulative Preference .....		804,400
	<hr/>	<hr/>
	\$3,800,000	\$3,600,000
Bonds 6% .....	\$1,200,000	\$1,200,000
Less Redeemed..	252,695	252,695
	<hr/>	<hr/>
	\$ 945,305	\$945,305
Laurentide Co., Ltd.:		
Stock .....		\$7,200,000

During the year ending June 30th, 1910, the net profits of the old company amounted to \$516,304, or equal to 14.33 per cent. on the total issued capital of \$3,600,000. It is understood that during the past year these earnings have been considerably increased.

On the above basis, however, were the capital doubled, the earnings would have amounted to 7.17 per cent. On a basis of earnings in 1909-10, therefore, the entire stock now being issued to the Laurentide Co. will show earnings of upwards to 7 per cent.

In 1907 the common stock of the company could have been purchased as low as 80. In the following year it advanced to 112½; in 1909 the high record was 130; in 1910, the dividend being increased from 7 per cent. to 7½ per cent., the stock sold up to 170, and by the end of March of the present year it had got 212 on the local market. Meantime the preferred stock also had grad-

ually advanced from around par in 1907 to 211½ during the spring of the present year.

#### Effect of the Drought.

A Montreal lumberman who recently passed eastward across to Newfoundland, had this to say when he returned:

"I never saw the country in such a condition as it was when I passed through. Nova Scotia, through certain portions at any rate, was parched and it seemed to me that a spark would set the whole country ablaze. As a matter of fact, many fires were burning as we passed through, and the atmosphere plainly indicated that very considerable stretches of forest must have been ablaze. As for Cape Breton, it seemed to be parched almost beyond recall. As I looked at it, it seemed to me that it could not recover in years. Fires were going on there also. When we reached Newfoundland we met the same thing. The water was very low everywhere, and the lumbermen entertained the greatest fears of results. One of the biggest piles of pulpwood I ever saw was that of the Albert E. Reed Co. The fire concerning which so many telegraphs were received here, later on, was burning, but was not at that time so serious as it later became. I presume that it was this enormous quantity of pulpwood that was burned. Everywhere I went the lumbermen told the same story of long continued drought. Those lumbermen who succeeded in getting down all their logs this spring were due for congratulations from all accounts. For the most part, large quantities of logs had to be left behind, and we saw many of these high and dry on the banks of the streams from which the waters had receded. It was hoped that the drought would soon be broken and that the rains would come on early this fall, as, in that case, it would probably be possible to float the logs out and get them down to the different mills.

"I thought that we, in Quebec, had had a very hard time during the pas-



season, but after making my trip I have come to the conclusion that we were very much better off than the people in the East. We have suffered from drought, it is true, but we have been spared the destructive forest fires. Everything considered, I think even the lumbermen in the East should congratulate themselves that the fires were not more general and more disastrous than they were, because it seemed to me almost as though nothing could have prevented the whole country going up in smoke once a fire was started."



#### PAPER FIRMS PLAY BALL.

Saturday, August 10th, will be long remembered as Red Letter Day in the calendars of the Victoria Paper & Twine Co., Ltd., Toronto, and Hubbs & Howe Co., Buffalo, when a very enjoyable game of ball was participated in by teams composed of members of the respective houses at Niagara-on-the-Lake by a dinner at the Niagara House.

pitching first ball. After the game, which resulted in favor of Buffalo, by 25 to 21, an admirable dinner was served, followed by some short and somewhat crisp-sounding witty speeches.



#### NEWFOUNDLAND PULP AND PAPER NOTES.

(Special to Pulp and Paper Magazine.)

August 31st, 1911.

The (Penn.) Newfoundland Co., Ltd., having for its main objects milling, limbering, pulp and paper manufacturing, in Newfoundland, was incorporated under the Newfoundland Incorporation Laws on 25th ult. The incorporators are: R. W. Newman, Williamsport, Pa.; E. U. MacCracken, Ralston, Pa.; E. J. Dexter, Ralston, Pa.; and W. B. Stewart, Williamsport, Pa.

\* \* \*

Lord Northcliffe's paper and pulp mills at Grand Falls, Newfoundland, are running to utmost capacity these



The Toronto contingent numbered some 16 boys, who together with two fans in the persons of Tom. McDermid, of Lincoln Paper Mills, and Clifford Rolph, of Rolph Clark & Co., left Toronto on the 9 o'clock boat. Others present were Geo. Beggs, manager of Hubbs & Hastings Co., Rochester, W. H. Howe, of Hubbs & Howe Co., Buffalo, and L. H. Gardner, of the Garden City Tissue Mills, Ltd., St. Catharines, who had the honor of

days. Every week a cargo of paper and pulp—the product of the mills—leaves Botwood for England. All of the Harmsworth publications in England are now printed on paper made from Newfoundland wood. Construction work is now going on at Grand Falls, for the installation of three more pulp grinders and paper-making machines. This work is not likely to be completed till next season.

At the present Newfoundland manufactured paper is selling at 2 1/4c. This is cheaper than the same grades in the United States.

\* \* \*

It is understood that the Albert Reed people, operating at Bishop Falls, will install paper-making machinery shortly. A branch railway has been built to Botwood, where the company now ship the products of their mills.

\* \* \*

A party of Americans, interested in the manufacture of pulp and paper, have just returned from an exploration of Labrador. They located some magnificent tracts of timber lands and will endeavor to secure the same for the purpose of erecting mills on that coast next year, should everything pan out satisfactorily.



#### THE VALUE OF WEIGHT IN PAPER QUALITY.



Arthur D. Little, of Boston, Official Chemist of the American Paper and Pulp Association, says of weight, as an element in the quality of paper:—

Weight per unit area is a quality factor of varying importance, although since paper is sold by the pound the lighter of two otherwise equally satisfactory papers is commonly to be preferred. This does not always hold, however, as in case of paper for conversion into celluloid. With wrapping papers weight per unit area becomes of the first importance, and when low and combined with strength commands the market, as evidenced by the rapidly extending popularity of kraft paper. With cover papers a small increase in weight may double the cost of mailing pamphlets, while obviously at equal prices per pound the cost of paper for printing a given number of pages is proportional to the weight per unit area.

Weight for bulk influences quality for most purposes, and is especially important in connection with book papers, blottings, matrix papers and box boards.

With book papers, indeed, this factor is often a good exponent of general quality, since low weight for bulk implies a minimum of filler, the use of high-grade stock and skilful treatment in the beater. English book papers are notable for their bulking property and moderate weight. Where an edition involving a number of volumes of varying amount of text is to be made, the bulking property of the paper for the different volumes should be in inverse proportion to the number of pages in the volume in order that the volumes themselves shall run uniform in size. Laid papers bulk more than wove papers of the same composition, and the bulking quality of different fibres varies over a wide range, esparto making an especially bulky paper. The use of mineral fillers, prolonged beating, hard calendering, coating and especially the addition of barytes to the coating mixture, all tend to make the paper thin for weight. They are justified only to the extent to which they may compensate by affecting other quality factors favorably.



An abnormal condition exists in Nova Scotia. In that province west of Halifax there are seven pulp mills, and all of them except the Macleod Pulp Co. at Milton are closed down and have been closed since June, owing to low water. The last spring was unprecedentedly dry, and though later showers have fallen, sufficient to restore the crops and keep up the pastures, there has not been enough to raise the water in the streams, and it will be October before grinding will be resumed at most of the mills. The Macleod Pulp Co. having a better source of water supply have been able to keep their board mill going.

Louis Robert, aged 70 years, employed as a millwright at the Gresfalls company's pulp mill at Three Rivers, Que., was instantly killed on Sept. 5th, as the result of a fall from a trestle one hundred feet high.

**FLAT BINDING OF MAGAZINES.**

For a long time publishers of magazines have wrestled with the problem of binding their output so that when it was held in the hand or laid on a table, for instance, the magazine would lie flat instead of having to be forced open with both hands. The "World's Work" has solved the problem by installing machines that will do this, and beginning with the October issue the periodical will have flat binding, making the magazine as easy to handle as a well bound book.

In discussing the situation recently one of the publishers' trade papers said:

"Of course at the present prices book stitching is quite out of the question. The wire stitch used is serviceable and much cheaper, and would be quite satisfactory if properly done. The trouble is with the inner margins of the pages. Book stitching would save nearly all of this margin, while the wire stitch takes up a quarter of an inch or more of it, and so binds another quarter of an inch as to make it difficult for the reader to see the inner margin of the type."

The "World's Work" editors point out that to take from the outer margin of the page to give more room to the inner margin might help the situation some, but they believe that the new machine, which will give their magazines a regulation flat binding, will give every reader full satisfaction.



W. P. Ryrie, who is widely known as the president of the Ryrie Paper Company, is to be congratulated on his recent election to the highest office in the gift of the Knights Templar, the Great Priory of that body in convention last month at Sault Ste. Marie, Ont., having elected him Supreme Grand Master. Another paper man elected to office was Mr. Charles F. Mansell, of the Toronto Paper Manufacturing Company, who was appointed treasurer.

The accompanying cut is a portrait of Mr. Aubrey White the popular Deputy Minister of Crown Lands and Forests for Ontario, who has done so much for



**Mr. Aubrey White, Grand Master of Grand Lodge, A. F. & A. M. of Canada, for Ontario**

the protection of our forests. He was recently elected Grand Master for Ontario of the Grand Masonic Lodge of Canada.



The Campbell Lumber Co., Ltd., Weymouth, N.S., whose pulp mill was burned down some time ago are planning to reconstruct same with a probable capacity of 13 grinders. They also expect to generate electricity and to go into the manufacture of paper in the near future.

The building for the Garden City Paper Mills at St. Catharines has just been completed, and installation of machinery is going on. The mill will now turn out tissue and toilet papers, and tissue specialties. It is expected operations will commence about the first of December.



**PULP AND PAPER MARKETS.**

Toronto, Sept. 18.

The conditions in the paper trade, at least the news-print branch, were never better than they are at present. There is a heavy demand from the United States, partly owing to the extremely low water which has prevailed in the chief pulp producing centres. People there seem disappointed at not being able to pick up news a good deal cheaper owing to the new tariff regulations regarding importations from Canada. Practically all the mills are running to full capacity. The home demand is very brisk, as publishers have needed more in order to make up election supplements or at any rate large-sized papers owing to the demand for space. The reports coming to hand of bumper crops in the West, where 200,000,000 bushels of wheat are looked for, also create extremely buoyant business conditions in the West, which find a sympathetic response in the Eastern Provinces.

The book and writing mills have apparently got over their period of quietness and expect a good fall business. Kraft and wrappings also would seem to be sharing the improvement coming from continued good times. Prices, however, are still on an unsatisfactory basis and some cases of cutting of rates are still heard of.

The ground wood market is very stiff and prices during the past month have advanced \$1 or \$1.50 per ton, manufacturers finding it by no means difficult to obtain around \$20 at the mill. Some Scandinavian pulp has been selling in the States in competition with Canadian at \$26 to \$28 per ton delivered. Manufacturers are not rushing for orders at the above price of \$20, it being a general belief that prices may go still higher. A serious state of things is presented by the low water existing in the streams. Timely rains last month were of some benefit but now again the Chaudiere and Ottawa River are lower than they have ever been. J. R. Booth

last month had to close down four of his grinders, and as the City of Ottawa requires a certain amount of water for its municipal electric light and power plant, it is quite possible that further restrictions will have to be made on the use of water power. Some believe that no lasting relief can be expected before the close of next winter. Sulphite is in brisk demand, and the price for bleached is now \$52 to \$53.

We quote:

News print, rolled .....	2 1/2 c.
News print, sheets .....	2 3/4 c.
Book papers—Carload lots No. 3 ..	4 c.
Book papers—Broken lots No. 3 ..	4 1/4 to 4 1/2 c.
Carload lots No. 2 .....	4 3/4 c.
Broken lots No. 2 .....	5 1/4 to 5 1/2 c.
Carload lots No. 1 .....	5 to 5 1/2 c.
Broken lots No. 1 .....	6 to 6 1/2 c.

**Wrappings—**

Manila B. ....	2 1/2 c.
Fibre .....	3 c.
No. 2 Manila .....	2 1/2 to 3 c.
No. 1 Manila .....	3 1/4 c.
Kraft .....	4 to 4 1/2 c.

**Pulp—**

Ground wood (at mill)....	\$18 to \$20
Sulphite (bleached) .....	\$52 to \$53

**Paper Stock—**

Rags, thirds and blues (delivered) .....	\$1 60
Rags (roofing) .....	\$0 to \$0 50
White blanks (delivered).....	1 25
Folded news (delivered) .....	11 00
New cuttings, colored (delivered) .....	4 1/2 to 5 c.
Cuttings—Foreign, white (delivered) .....	6 3/4 c.
Book and pamphlet (delivered) ..	80 c.
Bagging (delivered) .....	1 00

**BRITISH MARKETS.**

Quotations given by World's Paper Trade Review are as follows:—

**Mechanical Wood Pulp.**—Notwithstanding the lockout in Norway, orders are difficult to obtain; buyers seem well supplied and are not inclined to pay any advance. It appears that many mills are well bought, and consequently what



quantity is being put on the market can not find ready outlet.

**Chemical Wood Pulp.**—There seems to be a somewhat better demand for bleaching sulphite, and perhaps the demand for soda pulp is rather better; the price of strong sulphite is well maintained, and there are a few enquiries.

**Chemicals.**—A steady market is reported with fair exports, which are, however, limited by labor troubles at receiving ports. Ammonia Alkali, 58 per cent, is quoted £4 5s. to £4 10s. according to markets; Bleaching Powder, £4 15s. per ton; Caustic Soda (high-strength) £10 2s. 6d.; Soda Crystals, £2 12s. 6d.; and Salt Cake £2 2s. 6d.

**Rags.**—In London trade is at a standstill owing to strikes. Business in other sections fair. Cotton and linen rags in demand. Stocks of better class waste papers diminishing. For foreign rags prices are well maintained.



## SCANDINAVIAN MARKETS.

The demand for wood pulp for prompt shipment continues quite strong. Owing to the unfavorable water conditions on account of the drought the quantities available are rather limited. The demand for unbleached sulphite cellulose is likewise on the increase. As the shortage owing to the lockout of the workmen in Norway will be quite considerable, the manufacturers have become firmer in their demands. Bleached sulphite cellulose also greatly in demand.

C. E. Sontum, Canadian commercial agent for Norway and Denmark, reports that as a consequence of the lockout in Norway business in paper and wood pulp is practically suspended. Still there are many inquiries. Even those mills which have stocks on hand, he says, will be unable to ship during the lockout unless the goods were at the ports before the trouble began. Mr. Sontum estimates the number of men

affected by the labor trouble at 32,000, principally employed in the pulp and paper mills, sawmills and shipbuilding yards. The fight is the keenest in the history of the country. The employers claim that with the competition from abroad it would be impossible to advance wages.

(Continued on Page 70.)



—The depredations of the spruce-bud worm are causing a good deal of anxiety among Canadian lumbermen. Two years ago the work of the bud-worm was first noticed in Quebec and on Vancouver Island. During 1910 the affected area extended east of the St. Lawrence River. Careful investigations started by the Department of Agriculture in 1909 point to the possibility that in the course of a year or two the worm will likely be killed off by its natural enemies.

—The report of the Canadian Forestry Convention at Quebec has just been issued. It contains addresses, papers and discussions by Canadian and United States authorities on forestry and lumbering. The resolutions passed and changes suggested in the laws are included. Free copies may be obtained upon application to the secretary of the Canadian Forestry Association, Canadian Building, Ottawa.

—The publishers of *La Papeterie*, a prominent French paper trade journal published at Paris, favor us with a special number of their publication. The issue contains a humorous review of the French paper trade for the past twenty or thirty years by a paper maker, Mr. A. Faillot, M.P., M. De Vains, a chemist, writes describing a new theory for the sizing of paper. These features, together with lesser articles, and descriptions of engineering works, make up a very pleasing and instructive number.

## FOREST PROTECTION ON DOMINION LANDS.

The most important phase of forestry in Canada at present is the prevention of forest fires. The Forestry Branch of the Department of the Interior undertakes the fire protection of all timbered lands in Manitoba, Saskatchewan and Alberta, together with the Railway Belt and Peace River Block of British Columbia. Two distinct fire protective organizations are maintained, the one for the 16,000,000 acres of permanent forest reserves, the other for the unorganized forested districts exceeding in area 300,000,000 acres.

Fire protection on the forest reserves is fairly intensive. The reserves are divided into districts varying in size from 100,000 to 1,000,000 acres. Each reserve is in charge of a chief forest ranger and each district is in charge of a forest ranger, all of whom are permanent employees selected for their knowledge of the country, ability to handle men and experience in forest work. During the danger season extra men are temporarily engaged to act under the direction of the forest rangers in the larger, more exposed districts.

Throughout the open season improvement work is pushed, the idea of which is to equip each reserve with a complete system of roads and trails, fire lines, lookout towers, telephone lines, ranger stations and tool caches. The work is done by laborers employed by the month, acting under the direction and with the assistance of the forest ranger in charge of the district.

The chief object of the improvement work is to strengthen the fire fighting force. The roads and trails are to enable the rangers to patrol more easily, to check fires, to make it possible to transport fire fighters and supplies quickly to a fire. Wagon roads constitute a primary system in each forest reserve, with pack trails a subsidiary system. Fire lines are to mark the boundaries of reserves and to prevent

fires from entering the reserves from the clearing of private land. They cost \$10 to \$35 per mile to construct. Telephone lines are to enable rangers to keep in touch with each other and with head office, to send in quickly notice of a fire and thus save the important hours of a fire's first start. They cost \$30 to \$50 per mile to construct, grounded circuit. Look-out towers are constructed in level and rolling country so that one man may cover a large territory and see the first sign of incipient fire. The man on lookout is provided with good maps, with a range finder, and is connected by telephone with headquarters. Towers may be built without equipment for \$40 to \$50. The rangers are being provided with permanent log houses and stables in the districts, where they will live the year round.

(Continued on Page 56.)



The E. B. Eddy Co. have passed on plans for a big new warehouse in Toronto. The site selected is the one at 73-75 Wellington Street West, formerly occupied by the Consolidated Plate Glass Co., and has a 42-ft. frontage with a depth of 200 feet. The building, which will be four storeys with a basement, it is estimated will cost \$100,000. The company hope to be able to move into their new premises by the first of June next.

In the case of Imperial Mills vs. Quebec Bank, Mr. Justice Britton has dismissed the action and decided that the plaintiffs shall pay all costs and any damages the bank may have sustained. The story of the trouble briefly is that the Paper Company gave logs as security to the bank for loans. To take advantage of high water the logs were being driven down stream by the Paper Company when the bank took possession. Damages were claimed by the Paper Company but the judge's decision has reversed matters.

# THE PULP AND PAPER MAGAZINE OF CANADA

Vol. 9—No. 10.

TORONTO, OCTOBER, 1911

Canada, \$1. a Year.  
Single Copy, 10c.

## Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

**Subscriptions:** Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage, \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required, four days earlier. Cuts should be sent by mail, not by express.

**BIGGAR-WILSON, Ltd.**

**PUBLISHERS.**

Offices, Confederation Life Building,  
Toronto, Canada.

### THE FAVORED NATIONS TREATIES AND CANADA'S POLICY.

It is as sound in politics as in religion to test and sift all things, but put into practice only that which can be proved to be good. It is because they failed to apply the sifting process before adopting it that the promoters of the deceased reciprocity proposal made their mistake. They did not look at both sides of the proposition, or prove the problem backwards. Many of its advocates do not even yet comprehend the difficulties into which this country would have been landed if the late government had had their way. That a number of estimable speakers and writers still refer to the defeated reciprocity scheme as an unappreciated effort to secure greater free-

dom of trade is sufficient evidence that the logic of their position is not understood by themselves.

There are many who believe in free trade as a principle and it is with these we are dealing. The late Premier has professed himself a believer in free trade ever since he entered public life. It was as a measure of free trade that he put forward the late reciprocity proposal, and it was upon this ground that his principal supporters on the platform and in the press pleaded for it. Had it been put into force it would have created new channels of trade in certain commodities, but the theory broke down when its advocates failed to see that there were other countries to be considered besides the United States—that we should have struck a blow at the favored nations system on which the commercial negotiations of our Mother Country were based and that we should have found ourselves discriminating without just cause against the trade of the fourteen other nations with which Canada is associated under these treaties. On free trade principles the exclusion of these fourteen nations from the trade advantages we proposed to give to the United States would have been utterly unjustifiable; yet that indefensible step was the logical sequence of Sir Wilfrid Laurier's demand at the recent Imperial Conference that Canada be empowered to re-

nounce her treaty connections with those fourteen nations. And this, too, for the sole purpose of connecting herself up with a country whose tariff against the rest of the world is nearly twice as high as the tariff of Canada.

In a letter to the press, written before the election, the writer gave the following explanation of the predicament that Canada would have been involved in had the compact with the United States gone into force:—

When the United States annexed the Hawaiian Islands and the Philippines and Porto Rico—which annexation, by the way, was the direct outcome of two reciprocity agreements—did it bring liberty of trade to those colonies? It did not. On the contrary, in annexing those islands the United States barred out all the rest of the world, including Great Britain and Canada, with a tariff higher than the tariff of either of these groups of islands before the annexation.

In the case of Cuba, the United States had so distinctly pledged itself before the civilized world to give that island its complete independence that it felt obliged to concede local self-government, but the United States retained military domination over the island by reserving two naval stations and dictated its foreign trade policy by insisting on a trade "preference" in favor of the American Republic of the very kind which President Taft is so fearful that Canada will maintain with the other colonies and Great Britain. Not only was Cuba induced, or compelled, to give a preference of from 20 to 40 per cent. in favor of United States goods, but to impose in addition a surtax of from 25 per cent. to 30 per cent. against the goods of every other country,

making in some cases a discrimination of 60 per cent. against the trade of all nations except the United States.

Canadians who really believe in free trade with the world and advocate it as a principle must ask themselves whether the proposed agreement seeks to throw a tariff ring-fence around Canada or whether it is designed to give Canada a lower tariff with the world at large. According to Mr. Taft's own statement, made on three public occasions, the United States Government proposes that Canada shall align herself with the protectionist policy of the United States. This must necessarily be so, for neither the Democrats nor Republicans propose to concede free trade to any other country than Canada. The utmost that either party there advocates is tariff reduction, and that such reduction will be very cautious and gradual is made clear by the fact that President Taft has just vetoed all tariff changes except the reciprocity treaty.

This point being disposed of, let us ask which way the present government is heading. At the recent imperial conference the Canadian Premier asked, and was granted, power to denounce the favored nations treaties by which twelve or fourteen other nations would be entitled to the same advantage in the Canadian market as we propose to give to the United States. What is the "favored nation" principle?

It is an agreement between two nations by which they mutually pledge themselves not to give any other nation better trade terms than they give to each other. Now, the United States has never admitted, and does not now recognize, the favored nation principle as interpreted by Great Britain, and, such



being the case, what is the government's object in denying to those fourteen countries the advantages of the treaty unless it is to adopt the restrictionist policy of the United States? Remember that the treaty with Germany was denounced, not on this ground, but because Germany denied to Canada the right to give the Mother Country a preference.

Now, the protectionist party in Canada makes no pretence of any other purpose than to exclude other countries from the trade in such products and manufactures as Canada can furnish with advantage at home. But Sir Wilfrid Laurier has professed ever since he entered public life to aim steadily at achieving free trade. If freer trade is the purpose of the agreement, and if it is good to have an unrestricted exchange of farm products with the United States, why should we not have an equally untrammelled interchange of farm products, etc., with other countries? If one extra free market is good, surely fourteen extra free markets are better, and a German potato or an Argentinian sheep would be just as welcome as an American sheep or potato. On just what ground do we invite the one and repel the other?

Anyone who has studied present-day international economics cannot deny that this wholesale denunciation of the favored nation treaties will knock a prop from under the Mother Country, which has had such a struggle for generous trade treatment among the protectionist nations of the world. Who can doubt that, when these dozen treaties expire and the question of terms is raised, Britain's mouth would be stopped if the example of her own daughter nation in taking the selfish American view could be quoted

against her? That this is not a mere supposition is proved by the fact that to this day Great Britain has not been able to come to an understanding with Germany since that treaty was abrogated at the instigation of Canada.

We thus see that Canada cannot halt at the point where this agreement begins. Our tariff policy with the entire world must be determined by this step. We cannot, if we would, allow the greater problem of world relationships to be evaporated into petty questions of the trade in beans and peanuts between Canada and the United States.

To plead that in ranging herself alongside a nation whose tariff against all other countries is still nearly twice as high as ours, Canada would be taking a step towards free trade is as logical as to affirm that Great Britain would have carried out the principle of free trade if she had formed a zollverein with the United States and kept up her duties against the remainder of the world. To claim that we seek enlarged freedom of trade and to reduce the cost of living and then to deny the application of our own theory except in a Siamese-twin compact with a single country is self-stultification indeed. We must be bound by our own logic, and we cannot get away from the fact that free trade with one country in any article to the exclusion of other countries is discrimination. Nor can any reasonable person deny that Germany is right in reminding the United States, as she has just done, that the admission of free pulp from Canada is a violation of the American agreement with that empire. If the United States breaks faith with Germany as well as Norway in this case it is not the best augury for us.

Since the above was written events have shown that if the treaty had gone into operation it must either have been amended in the items of pulp and paper particularly affecting Canada, or else it could only have been continued at the cost of violating faith with Germany, to whom, in this case, the United States had conceded a clause according rights equal to those given to Canada. Germany is now claiming these rights, and it is hard to believe that the United States Government will attempt to deny the plain provision of its own contract.

We may explain that, although the pulp and paper clauses of the trade agreement made pulp and paper under four cents a pound free upon condition that the Act would be adopted by both countries, the United States Congress amended the agreement in that particular, and paper became free upon the signing of the bill by the President. It is upon this that Germany claims the same terms as allowed to Canada.

By the way, the fact that pulp and paper are now admitted to the United States free of duty without the adoption of the agreement substantiates the claim of those who maintained that the United States would lower its duties on some classes of goods without needless concessions from Canada. The natural advantages of Canada in the manufacture of pulp, paper, flour and cereals are plain, and if that country raises the duties on those products it will only increase Canada's advantage in the trade in such goods with other countries. The raising of duties by the United States may divert the channel, but it will not stop the flow of the stream of Canada's foreign trade. We, therefore, think that the electorate decided wisely in de-

clining to allow their eyes to be blindfolded to the existence of Great Britain and other nations with whom it is good to have direct trade relations. The more it is analyzed the plainer it appears—whether viewed from the standpoint of free trade or protection—that the agreement would have proved an unstable and disappointing bargain, fruitful only in misunderstandings.

Canada's relations with the United States were never better than in recent years, and these relations became improved just in proportion as each country became reconciled to allow the other to go on its way untrammelled by the other. The recent attempt at fiscal entanglements brought disturbance of this neighborly feeling, and the sooner it is dropped and forgotten the better.

As was to be expected, the question of admitting wood pulp and paper into the United States from all countries free of duty under the "most-favored-nation" clause of commercial treaties as a result of the only operative section of the proposed reciprocity agreement has been officially raised in the United States Treasury Department.

The Surveyor of Customs at Atlanta, Ga., asked the department whether Swedish wrapping paper was entitled to free entry in consideration of "most-favored-nation" treatment. With the importer claiming equal privileges with the citizens of Canada, the Surveyor was asked for additional information.

The point raised was a new one for officials of the Government. The United States has always maintained that third parties could not claim "most-favored-nation" treatment under the reciprocity agreement, as these are in the nature

of bargains. Canada's rejection of the agreement, however, eliminates the consideration of reciprocity in the point raised.



### RECIPROCITY OVERWHELMED.

The pulp and paper industry with a very few individual exceptions still feels jubilant over what happened on September 21st.

Many years have elapsed in the world's history since a political principle was so keenly fought for and against as the Reciprocity Agreement. Seldom, indeed, has one been so satisfactorily disposed of. We refer now in jubilant tone not to the fact that the battle resulted as it did, but to the fact that it was so absolutely decisive as to remove all possible doubt as to its meaning. Doubtless many votes were cast in the way they were through prejudice or mistaken conceptions of the case at issue, but these were assuredly counterbalanced by votes of the same character which went to the opposite camp, for it is of no use blinking one's eyes to the fact that in any political campaign, more particularly in one of such a heated nature as that recently closed, the force of bias, canards, and exaggerated partisanship count for a good deal. Nevertheless, look at the matter as we will, these factors could not by any possibility account for one-tenth part of the landslide which swept a forty-three majority of a Government strongly entrenched behind fifteen years of power into a majority for the other side of approximately fifty. Practically the sole issue was Reciprocity, so there is only one inference possible from the premises.

Some journals, both in Canada and the United States, attribute the result partly to prejudice, ignorance and national fears, and one in New York goes so far as to stigmatize it as a victory for national stupidity. Allowance has to be made for disappointed hopes. But two or three plain facts militate against this view. In the first place, never was there such an educational campaign as that just closed. Newspapers on both sides simply gave themselves up to a careful and exhaustive elucidation of the various points involved in the controversy; every move in the game was keenly met and countered if possible by one on the other side; inch by inch the battle was fought. Again, it requires conviction, and strong conviction, to wean men away from their party affiliations; yet, never have so many men cut adrift from the Liberal party as was done during the months succeeding the espousal of Reciprocity by their leaders. Never before, also, has there been seen in Canada such a plunge into politics on the part of men of high mental and business attainments, who, disliking partisanship, yet answered the irresistible call of duty to forsake their chosen party and enlisted to save their country from a terrible blunder. These were the men, these and the voters who listened to them rather than to the voice of party, who defeated Reciprocity on the 21st of September. So, instead of blaming that defeat on prejudice and stupidity, our contemporaries may just as well admit that the rout was due to the intense conviction of the people of Canada based on several grounds.

Annexation may not have been in the minds of most Americans. Yet, if that cry was so purely a bug-a-boo as our Reciprocity friends tell us, why did so

many American public men and newspapers display that possibility as an argument for the pact? If there was nothing in the agreement calculated to make any difference to our Imperial relations, why did President Taft mention the "Parting of the Ways"?

But, granted the possibility of a doubt as to the ultimate effect of Reciprocity, the people of Canada had plenty of good reasons for voting against it on grounds which were far removed from doubt.

In the first place it was very distasteful to the masses of Canadians to be made into the tail of a kite for any political party in another country. The New York "Evening Post," one of the most authoritative of American newspapers, says, that another "thing writ large in the Canadian elections is the final collapse of the Republican pretence that the exactions and injustices of a protective tariff can be tempered by reciprocity. For years we have had this preached to us \* \* \* Somehow reciprocity was to be a kind of salve to put on the high tariff bruise. But in this supreme test of that theory it has failed utterly. The country now sees that in the mingling of outrageous tariff taxes with reciprocity what we finally get is no reciprocity and only an acceleration of the outrage."

Again, the Rochester, N.Y., "Union and Advertiser" says that, "having committed himself wholly to the stand-pat tariff policy, it is clear that President Taft has completely failed to make his administration meet the crying need of the time, the need of relief from the heavy burden of the cost of living. Reciprocity with Canada would not have met the demands of the country in this respect, but it would have helped, and it

would have encouraged the hope of better things to come. With reciprocity laid in the dust there is nothing to expect from the Republican party."

A little remark in the chief Government organ in Toronto on the "morning after" gives the case away, probably unwittingly: "The landslide was the only topic of conversation in the city, and the wild jubilation on the streets had a striking contrast in the hotels, where the news of Sir Wilfrid's defeat was received very quietly by the guests, a large majority of whom were Americans. And the Americans in the Toronto hotels, who took Sir Wilfrid's defeat most seriously were those of Republican persuasion, for they all said it meant the speedy downfall of President Taft and the possible resurrection of the Nebraska man."

Why should Americans have such a keen interest in Canadian elections? It simply showed the crude beginnings of an entangling alliance. In other words, President Taft and the Republican party were in a hole, and desired the assistance of Canada to dig them out. United States manufacturers were badly in need of raw products and wanted this country to supply them. Commercial and industrial conditions in the Republic were languishing, and so it was astutely thought that, by a judicious admixture of the stock with the neighboring country, full of the vitality of youth and exuberant with virgin stores of natural wealth, the general average of the progeny would be immensely raised. Commercial union or annexation might not have been in the minds of the progenitors of the pact (the American progenitors, we mean, for nobody questions the loyalty of Messrs. Fielding or Pater-



son), but history proves how long a lane proceeds sometimes from a small turning. During the Spanish-American war, nobody believed that that was the beginning of American Imperialism; nine out of ten people in the United States would have laughed the idea to scorn. Yet within a year Porto Rico and the Philippines were United States territory, and Cuba was under her suzerainty. Not through treachery or intentional breach of faith, but simply because the march of events was too strong to allow of any alternative.

But it is a mistake to imagine, as so many of our American contemporaries do, that the sole cause of the defeat of Reciprocity was of a political nature. The economic argument had great weight. The gain of a share in the United States market to our farmers did not compensate in their eyes for the partial loss of their home market.

Thousands of people, even those unbiased by having manufacturing interests, could foresee clearly enough that, in spite of the emphatic declarations of Government apologists, a removal of duties on natural products would ultimately be followed by a removal or reduction of duties on manufactured goods as well. The organs of the farmers, at whose behest Reciprocity was brought in, openly avowed that the latter was the thin end of the wedge which eventually was to do away with protection. Many who thought the farmers could get along without protection drew the line at manufactures as well. And they foresaw clearly enough that, once take the turning down that particular lane, the march of events would inevitably bring about what they feared. So they carefully avoided the lane.

Another thing which led to the overthrow of the pact was the natural fear that the interdependence of the various provinces, the very root of Canadian national entity, which has been the object of the labors of Canadian statesmen for nearly half a century, would be weakened, a belief strengthened by the preparations for a boom made by cities just south of the border.

However, the question as to which line of argument, the national or the economic, was responsible for the defeat of Reciprocity does not matter very much. The proposal was simply overwhelmed for the reason that, while there may have been some reasons for it, there were dozens of better ones against it, and the people of Canada registered their views accordingly. We would only say again, as we have before, that there was nothing inimical to our neighbors in this act, and we credit them with enough perspicuity to recognize it. The Americans are pleasant neighbors on the next lot, and we want them to continue as such. For ourselves, we confess this is still another argument against Reciprocity. Those who are acquainted with the history of the last Reciprocity deal between the two countries will understand the allusion. The best and most friendly neighbors are usually those who keep to their own side of the fence.



Judson A. De Cew, pulp expert, of Montreal, has just returned from a trip to Florida, where he was invited to investigate some propositions for the establishment of rosin and turpentine industries, along with chemical pulp propositions in the Southern States.

## THE FRUIT OF RECIPROCITY AND TARIFF REFORM.

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The rich tints wrought by the magic touches of the first frosts, and the glorious apparel in which the Canadian forests array themselves, softened, albeit, and etherealized in the haze of Indian summer, bring all minds into a retrospective mood. And when we look upon the Canadian orchards and vineyards laden with bloomy fruit, and scenting the autumn air with their aroma, the reflecting mind naturally enquires, what of the fruits of political careers now approaching the sear and yellow leaf? What of the great economic air-castle in which two great party leaders have been dreaming of the golden age in which revenues would raise themselves automatically through those magical conjurations by which the producers of one country would receive double the prices they now get for all they grow, while the consumers in the other country would enjoy the perpetual delights of bargain counter prices from the same source of advantage?

To be more specific, how has the application of President Taft's magic worked out in the domain of pulp and paper economics? "Beneath the rule of men entirely great," namely, the controllers of the United States daily press—President Taft put into force that fairy substitute for tariff reform, known as Reciprocity—that is, in so far as the pulp and newsprint paper was concerned, and the conditions of the Canadian reciprocity agreement have been operative for the past two months. This agreement was to reduce the cost of living and make things cheaper to the "toiling

masses." That was the sole purpose and the confident assurance of the daily papers who advocated the policy. How has it worked out in practice? Have the great dailies who sold their papers at two cents, reduced them to one cent since they have got free pulp and news print? Have they paid more to the news-boys or the news-dealers who handle their papers? Have they reduced their advertising rates, so that the merchants might give cheaper commodities to the "toiling masses"? Contemporary history is painfully silent on these questions; and the only information personally available to this magazine is to the effect that in one large United States city the big dailies have not only maintained their old price per copy, but have greatly increased their advertising rates. The castle has proved an insubstantial creation, but in the meantime the United States pulp and paper mills whose protection has thus been entirely withdrawn, find that the theoretical disadvantages under which they are compelled to operate are very real and tangible in actual practice. Some are reported closed, others are working at a loss, and yet the price of news print is a dollar per ton more than when the daily press started their agitation against the robber paper manufacturers. And now what shall be done unto the men whom the King delighteth to honor? Are they to be paraded in the King's apparel through the city, or are they to be hung on the gallows they prepared for the humble Mordecai?



Good progress is being made on the extensions to the Rolland Paper Mills at St. Jerome, Que.

**DISCRIMINATORY LEGISLATION.**

It is no wonder that the paper making interests in the United States are rebellious against the extraordinary condition of affairs under which they are made the sole scapegoat of the recent freakish reciprocity legislation of President Taft. Even had the full reciprocity agreement passed in both countries, the status of the pulp and paper manufacturing industries in the United States would have been seriously affected, but in view of the overwhelming defeat of the agreement in Canada, and of the fact that the pulp and paper clauses became operative quite irrespective of whether it was defeated or victorious, it makes the discrimination shown by the United States Government peculiarly aggravating. In a measure it is no business of ours what the United States may choose to do with its own tariff arrangements, excepting in so far as it proves only too clearly what the opponents of reciprocity in this country said all along, viz., that it was an insidious attempt to gain access to Canada's stores of raw materials and that in this particular case the President gave way to the selfish machinations of the newspaper publishers.

Hon. Elihu Root's amendment will no doubt be remembered in this connection. On the occasion of making his motion he said: "The amendment the House incorporated in the bill taking off this duty and making the wood pulp and paper schedule a separate and independent proposition is going to pass, but it is not going to pass under any false pretence, inadvertent or otherwise. It is going to pass because this Congress means to take that duty off and not be-

cause it is a part of the reciprocity agreement."

This is an exact statement of the case, although the truth was shirked by the President and his advisers. Mr. Taft has, in the meantime, vetoed the free wool bill, because it would be unfair to make such a serious change in tariff matters without waiting for the report of the Commission appointed for the purpose of investigating all the data required before a proper judgment could be arrived at. How does he reconcile this position with the one adopted in the case of the pulp and paper schedule? We are not surprised that organs of the trade in the United States, such as the "Paper Mill," write as follows:—"In other words, at the demand of the United States penny paper publishers the paper industry was singled out for slaughter, and under the guise of "reciprocity" and "lower cost of living" a measure was passed wiping out the protective tariff on paper and pulp so far as Canada freehold wood is concerned. It was and is an unjust measure. It made a discrimination against the paper industry alone. That industry is being treated on a basis wholly different from that on which tariff treatment to other industries is treated, and the President and Congress have shown an utter and absolute indifference as to what becomes of that industry."



Papeterie de Berthier, Ltd., Berthier, Que.; capital, \$50,000. To engage in business as publishers, printers, booksellers, paper merchants, etc. Incorporators are Octave Lavallee and M. A. L. Aubin, notaries; J. O. Daviault and D. Tessier, merchants, all of Berthier.

### LITERARY NOTES.

We have received two pamphlets from the Green Bay Barker Co., Green Bay, Wis., describing their rotary pulpwood barker; the advantage of which is that it is so arranged as to remove the bark from small and crooked wood as easily and economically as from straight. It also is said to handle small wood without waste.

\* \* \*

Heaton's Annual, a Commercial Handbook of Canada and Boards of Trade Register for 1910, contains in concise form, the information which a business man requires from day to day. The few main headings under which the book is divided, make it particularly easy of reference, which, with correctness of detail, is the main thing to be aimed for in a book of this kind. Everything connected with the tariff, decisions of the Custom Board, etc., will be found in complete form. A new feature is a short statement of the waterpowers existing in the different provinces. The Board of Trade register contains descriptions of towns, together with a note of the opportunities offering for manufacturers, investors, and those seeking employment. Copies can be obtained from the publishers, Heaton's Agency, 32 Church Street, Toronto. Price, \$1.00.

\* \* \*

The Paper Maker and British Paper Trade Journal, edited by S. Chas. Phillips, M.S.C.I., London, has recently published a special annual number which is a model of its kind. It contains over 270 pages of good type on fine paper, enlivened with such interesting pictures as Mr. Phillips knows so well how to produce. The articles of a technical as well as descriptive character are fully up to their usual excellence.

\* \* \*

"Modern Athens, the Homeland of Paper Mill Engineering" is the title of a beautifully gotten up book issued by Bertrams, Limited, the well-known engineers, Sciennes, Edinburgh, Scotland,

and distributed to the paper mill trade of Canada by the J. L. Morrison Company, Toronto, the company's sole agents for Canada. The book gives views of some of the best known paper mills for which Bertrams, Limited, supplied machinery, and another special feature is the beautiful views of scenes in Edinburgh, the Modern Athens.



### BRITISH MARKETS.

London, Sept. 29, 1911.

Quotations are given in the World's Paper Trade Review as follows:

#### Mechanical Wood Pulps.

Papermakers appear to be more prepared now to consider the purchase of further supplies in order to increase their stocks, and any lots that are offered a shade under the prevailing prices can soon find an outlet.

#### Chemical Wood Pulps.

There seems a firmer feeling in the market both for sulphite and soda pulp, and buyers appear to realize that it is worth their while to pick up anything that is reasonable.

#### Chemicals.

There is more activity in the market for chemicals. Negotiations are proceeding for contracts over next year, particularly for bleaching powder, at prices which show no advance on those for 1911. Soda Ash contracts for next year are also on the same basis as those for the present year. Ammonia Alkali, 58 per cent., stands at £4 10s. f.o.b. Liverpool; Bleaching Powder, £4 15s. per ton f.o.b. Manchester; Caustic Soda (high-strength), £10 2s. 6d.; Soda Crystals, £2 12s. 6d.; and Salt Cake, £2 2s. 6d.

#### Rags.

Demand for home rags continues steady and improvement expected soon. Prices for foreign rags are firm.



### NORWEGIAN MARKET.

The pulp mills are starting again after the lockout as soon as practicable,



employers and employees being equally eager to resume work. As regards mechanical pulp, however, the water conditions are worse than they have ever been since this industry was introduced into Norway. The lockout has caused a reduction, it is estimated, of some 7,000 to 8,000 tons per week. It is very unfortunate that it will be necessary unless heavy rain sets in immediately, to calculate upon another heavy reduction during the autumn and winter, due to water scarcity. In fact, the prolonged drought has caused a state of things in Norway with regard to water which is probably without a parallel—the water famine will be nothing short of a national disaster. As to chemical pulp, the impression is gaining ground that this market has at last passed the low-water mark of the present depression and that prices may be expected gradually to improve.



#### PULP AND PAPER MARKETS.

Toronto, October 16th, 1911.

Business in the paper as well as other branches of business in Canada was good even prior to the elections. But since the result of the same was so emphatically made known, it has become even brisker than it was before. The demand for newsprint was never better, even if as good, and some of the mills have sold for months ahead. It was seldom that the fall season started so propitiously as this one is doing. Until Reciprocity was defeated there was a disposition to hold back, and now the question is settled, certainly for many years to come, if not for all time, trade is moving with an increased impetus. This good effect is being shared in by the book and writing mills, as also, to some extent, the kraft and manilla mills; the prices for these are still on an unsatisfactory basis, however.

The demand for ground wood pulp has been exceptionally heavy, much

more indeed than the market can supply in spite of a flatness in the United States, owing to dull business conditions in general. Stocks are low and the trouble is that, in spite of recent fairly heavy rains, the water powers remain low, which seriously hampers production. It is selling for \$25 to \$28 delivered, and in isolated cases it is said at even higher prices. Bleached sulphite experiences a good demand at \$52 to \$53.

(Continued on Page 376).



#### A DISINTERESTED CRITICISM.

Our esteemed contemporary "Paper" makes an appreciative and nicely worded reference to ourselves in the following article which we cannot forbear from quoting. We will try at all times to live up to "Paper's" good opinion, which certainly serves as an encouragement.

"We cannot withhold an expression of admiration for a publication edited with the degree of intelligence and fairness which characterizes the "Pulp and Paper Magazine," of Canada. The September number contains an editorial on "The Effects of Reciprocity," from which we extract the following:

"The Pulp and Paper Magazine has not endeavored to create the impression that reciprocity (or the American concessions, which came as a forerunner to reciprocity) will not benefit the newsprint branch of the Canadian paper industry. The fact that it may benefit one branch is not the point. The proposed agreement does, however, possess features which should condemn it in the eyes of all true, far-seeing Canadians. For one thing, it is grossly unfair to our rivals, the United States paper manufacturers, and we beg to differ from the old adage that all is fair in love and war. At least, trade is not the kind of war in which treachery on the part of the national guardians can be looked upon as a fair thing."

## THE INVENTION OF MAKING PAPER FROM WOOD.

The following interesting article from the Westminster Review, is from the pen of a man who claims to have been the first to think of wood pulp as a paper material, although he missed the reward of his perspicuity:

To some men, he pertinently remarks, an idea resembles a diamond in its natural state; intuitively they know it to be worth money, and they will secretly keep it, and work at it till its brilliancy and value are apparent, and then seek the highest market to trade it. I missed the turn of the tide in the following manner. It was during the early spring of 1865 when, according to my custom as a dealer in produce, I called upon Mr. Hook, the proprietor of the paper mills at Snodland, in Kent, for the purpose of trading some straw to him for pulping. I had previously disposed of several large lots to the same firm, and was in good expectation of further business; indeed, with the almost certain prospects of a quick turnover, my recent purchases had been somewhat heavier than usual, and I was really anxious to book a repeat.

Following the usual preliminaries, my question was met with an intimation of regret that business could not be done, owing to his having purchased an experimental consignment of pampas grass for manufacture into extra quality paper, and, proving to be too fibrous for the purpose, he had determined to use it for a coarser quality instead of straw as usual, and, for this reason, he could not trade until the consignment of pampas grass was through. Of course, this was quite reasonable, and I had to accept the position. Turning to me, he asked, "Had I ever seen the pampas grass?" No! "Then come on the wharf and have a look at it; there's a barge load of it which came up with last night's tide." As we were crossing

the space between the mills and the wharf the thought flashed through my brain, "If there's too much fibre in pampas grass, could it not be mixed with a pulp made from another substance minus a fibre, and, if so, what?" Now, besides being a produce merchant, I was also a flour-miller, and the ethics of my own trade suggested the question because if before milling a sample of wheat, we judged it to be too strong, our practice was to mix it with another sound sample deficient in strength, and after standing together for a few days the blend of the mellow with the strong would furnish a really improved sample for grinding, the two or more producing the identical quality required.

(Continued next month).



Among the candidates for political honors in the recent elections were several men very well known in the pulp and paper trades. Rodolphe Forget, who is interested in the Wayagamack Pulp & Paper Co., Eastern Canada Pulp & Paper Co., etc., won Conservative seats in Montmorency and Charlevoix; Geo. H. Perley, the successful candidate for Argenteuil, Que., is a large owner of timber and pulpwood areas; F. B. McCurdy, who defeated the veteran Minister of Finance in Shelburne, is largely interested in pulp and paper enterprises in Nova Scotia; F. N. McCrae, president of the Brompton Pulp & Paper Co., won the seat in the Liberal interest in Sherbrooke; while E. W. Tobin of the same company won in Richmond and Wolfe. Several prominent newspaper men were in the running; Hon. G. P. Graham, of the "Brockville Recorder;" Hon. J. R. Stratton, of the "Peterboro Examiner;" T. H. Preston, of the "Brantford Expositor," being among the defeated, while Hon. Frank Oliver, of the "Edmonton Bulletin," and Col. Hugh Clark, of the "Kincardine Review," were victorious candidates.

### THE SUPER-CALENDER.

In the *Wochenblatt*, Willi Schacht and Professor Kirchner contribute an interesting article containing a mechanical study of the work of a modern super-calender. This study is compared with similar tests carried out with a super-calender twenty-two years ago. Since that time the design of the super-calender has undergone modifications resulting in its action, which formerly was one largely of friction glazing, becoming now more one of simple smoothing pressure with a minimum of slip. This has been necessitated by the demand for higher speeds and the glazing of thinner and often weaker papers, which cannot stand the draw of a friction glazing calender.

The modifications of design thus introduced in the last twenty years comprise the raising of the drive from the bottom bowl to one of the bowls higher up, the increase of the diameter of the hardened steel bowls, a larger total number of bowls and heavier pressure on the top levers.

The calender tested embodied most of these improvements; it was electrically driven and worked a reel of paper 46½ inches wide. There were eight bowls, weighing 8½ tons, excluding the bottom one, unloaded; when the whole of the weights were on, the weight on the bearings of the bottom bowl was 32 tons, or excluding the weight of this bowl, 29½ tons. In the tests it was shown that in running the calender without paper the effect of increasing the pressure 3.43 times was to increase the consumption of power 2.74 or 2.78 times, according to the speed of running. In running paper through at different speeds, it was found that full speed required 1.95 times the power consumed at half speed, whilst the amount of paper turned out was 1.75 times without the weights and 1.81 times with all the weights. Thus the increase of pressure reduced the slipping of the paper at high speeds. The

shrinkage of the paper in width varied according to its quality; in the paper tested, the shrinkage in width was 1.60 per cent. with the weights on (high glazing) and only 1.08 per cent. with the weights off (moderate glazing).

The following figures, showing the expenditure of work per cwt. of paper, are instructive. With moderate glazing, without the weights, the consumption of power was 1.81 h.p.h. per cwt. at half speed, and 1.98 h.p.h. per cwt. at full speed. With high glazing, with all the weights on, the figures were 4.05 h.p.h. per cwt. at half speed, and 4.35 h.p.h. per cwt. at full speed. Thus high glazing costs more than twice as much as moderate glazing. The saving of power working at half speed is only small, whereas the output is vastly reduced. As the authors point out, time is money, and it is more economical to work at full speed even if it costs a little more per cwt. of paper.

The difference between the velocity of the paper entering the calender and the velocity of the paper coming out, gives data from which the amount of slip can be calculated. At full speed, without the weights, the slip was 2.85 per 1,000, and at full speed with the weights the slip was 4.08 per 1,000. At half speed the slip was 2.75 without the weights and 4.21 with the weights. Half speed represented about 220 feet per minute and full speed about 390 feet per minute, without the weights, and about 10 feet per minute less with the weights.

The small amount of slip recorded above for the modern calender may be compared with that registered on the calender of twenty years ago. This machine working at about 185 feet per minute, showed a slip of 12.1 per 1,000 without the weights, and 16.5 per 1,000 with the weights; thus, roughly, four times the amount of slip.

The modern calender therefore puts far less strain on the paper and reduces the quantity of "broke." The "modern" calender tested above by no means represents the "last word" in calender

design. Calenders are now made with as many as sixteen bowls, of which the seventh bowl may be driven direct and a belt drive taken from this to the top and bottom bowls, all with the object of reducing slip, whilst the weights are enormously increased.



#### MAKING BLOTting PAPER.

It is recorded that unsized or absorbent paper was used for drying purposes as far back as the year 1550, but the pounce box and Calais sand were indispensable fittings of every writing desk till about the nineteenth century. These have now been entirely superseded by the commercial article known as blotting-paper.

In describing its manufacture it is natural to begin with the material from which blotting-paper is made viz., old, soft and well-worn cotton rags. The sources from which these are drawn are numerous and varied, one of the most important being the rag and bone man, who plies his trade among the country villages, giving to the children a piece of cheap delft, a gaudy paper wind wheel, or a rubber balloon in exchange for a handful of rags. The hawker then sells them to the rag merchant, who in turn sells them to the paper-maker.

On arrival at the mills the rags are dusted and then sorted into their different grades. The dusting process consists of placing the rags in a metal chamber in which revolves a shaft containing blunt teeth. A corresponding set of teeth projected downwards from the top of the chamber, and as the shaft revolves, the rags come in violent contact with these spikes, which knock off any dirt, sand or dust which may be adhering to them. They are then thrown into a large cone-shaped sieve for further purification, from whence they fall into baskets and are taken to the sorters who overhaul them, and remove all buttons, hooks, and eyes, rubber

whalebone and other deleterious matter, at the same time separating the rags into their respective qualities.

The rags are then cut into small pieces by large guillotine cutters, or cutters made on the principle of the lawn mower, before being conveyed to the boiling department, where they are packed into wrought-iron boilers of various sizes. A solution of caustic soda is added for the purpose of saponifying all fatty or greasy matters, destroying any coloring and non-fibrous matter, and dissolving out any size or starch which may be in them. The boilers are then closed and steam admitted and the rags are allowed to boil under pressure for several hours.

When sufficiently boiled, caustic liquor is drained off and the rags are emptied out and conveyed to the breaking department.

The breakers consist of oval cast-iron vats, in which heavy rolls containing longitudinal knife blades revolve at a high speed. The rags are first thoroughly washed in the breakers by a constant stream of clear water; they are then gradually disintegrated by allowing the rolls to descend and tear them between a bedplate of sharp metallic ridges and the knife of the revolving rolls, and in this way they are reduced to a state of pulp. Bleaching liquor is then added and a snow-white material is produced in a short space of time.

The pulp now goes on to the beaters, which are very similar to the breakers in structure, where it is mixed with water and any coloring matter which may be required to produce the shade of paper desired. When ready to be made into paper the pulp is run into circular chests and kept in a constant state of agitation in order to keep it of the same consistency throughout. It is then pumped to the paper-making machine, where it is further diluted with water and made to flow over sand traps, which are long wooden sprouts with hollow depressions every few yards. As the



liquid passes along these ducts any impurities such as coal dust, sand, or particles of metal fall into the depressions and are thereby arrested.

The pulp then passes through strainers consisting of brass plates perforated with very fine slits through which the liquid pulp flows. All threads and light impurities which may have been in suspension are here prevented from passing on to the machine where the paper is made.

The paper-making machine consists of two parts, viz.: "the wet end" and "the dry end." The former consists of an endless wire cloth of fine mesh, the length and breadth of which vary according to the size of the machine. This wire cloth travels on a set of rolls placed horizontally on a metal framework. As the pulp, which is now about the consistency of milk, flows on to this wire gauze, most of the water falls through the meshes leaving the fibre in a thin layer on the surface of it. The wire carrying the paper then passes over a series of vacuum boxes which suck a considerable portion of the remaining water out of the sheet. It is at this stage of operations that any water-marking of the paper must be done. A light skeleton roll covered with wire gauze, and on which the name or water-mark in copper wire is sewn in relief, is made to revolve on the surface of the paper. Every revolution of the roll impresses the name on the wet sheet, immediately after which the water is drawn out of the paper by the vacuum boxes, leaving the water-mark fixed and clear.

The paper is now dry enough to allow of its being pressed between heavy rolls and led over a series of drying cylinders heated internally by steam. On leaving these cylinders in a perfectly dry state the paper is taken over cooling rolls and then through a set of finishing rolls, if a smooth surface is required on the paper. It then passes on to a reeling apparatus and is wound on to large reels. Thereafter the reels are slit and cut into sheets of any de-

sired size, which are then taken to the sorting and finishing department, where all soiled and torn sheets are removed and the paper is counted into reams, packed and despatched to the customer.



#### DIRT IN THE MANUFACTURE OF FINE PAPER.

Generally one thinks of removing dirt only in the bleached half stuff. One should, however, consider purity more when storing, cutting and boiling the rags. Cases have been observed in which papers made of good and expensive rags could be manufactured at a lower price than if they had been made of cheaper rags, because in the case of the latter the yield was less and the waste in consequence of impurity greater. New white rags should be washed with washing drums; when rapid, intense washing is important, however, washing screens will be retained. In order to avoid unnecessary loss of pulp, the washing screens must, of course, be stopped at the right time when beating continuously. When the rags are boiled they must be thoroughly mixed with the liquor before steam is admitted, and the temperature of the steam should not rise above 160° C. The crust of dirt which settles in the boiler must be regularly removed. In boilers protected from the radiation of heat care must be taken that pieces of the insulation do not get into the boiled material. In order to keep leather, india rubber and the like out of the rags it is preferable to give the rag sorters a bonus for sorting out these substances. For separating buttons, metal, sand, etc., the half stuff should be allowed to flow slowly before being bleached over a broad sand trap. During bleaching the chloride of lime solution will be filtered by a gravel filter and the sulphuric acid through glass wool. In drain chests it can frequently be observed that the bottom layer has become soiled. This is

partly due to the outlet ports being too small so that liquid is dammed up therein and returns from the ports into the chests. In the event of the drain chests not being surmounted by an arch it is preferable to coat all iron parts over them for avoiding rust, or water which has contacted therewith, passing into the pulp. When the half stuff is removed from the drain chests scoops of tinned copper and not of steel should be employed. The hollander engines must be thoroughly cleaned from time to time, the rolls of the whole stuff hollanders being inspected as to whether or not stuff has jammed between the knives. The dome should be made readily removable and lined with sheet copper. Likewise it is preferable to cover the paddle with copper. The vats or tubs into which the pulp is conveyed from the hollander engines must not be placed on the ground but on a clean bench. Empty vats must not be placed one in another. Belts from which dirt might fly into the pulp must be covered. The brays of the edge runners must be carefully lubricated. The resin deposited on the bushes and scrapers of the edge runners when cellulose is passed through them must be removed at regular intervals. The mill water must be not only mechanically cleaned but also liberated from the iron dissolved in it. The water for the hollander engines, for making size, etc., should be sent through filtering bags in addition. All pipes at the paper machine must be laid from the first so that they can be readily cleaned. Particularly, the pipes for the waste water from the strainers and also from the sand traps and knot-strainers, etc., must be cleaned every Sunday. Sharp bends are to be avoided in the pulp pipes, and the inside diameter of the packing rings must exactly equal the internal diameter of the pipes. In the case of fine papers it is preferable not to recover the water from the suction apparatus, because it would afford a further possibility for the formation of blur.

The raw materials must, of course, be carefully tested. To this end cellulose is moistened and observed with light falling through it. When old paper is employed for expensive kinds special care should be taken. Suitable receptacles should be placed ready for waste both from the paper machine and also from the cross cutters and calenders. The waste from the finishing room must be carefully examined beforehand in the event of its being employed for fine papers. Bought paper shavings are preferably employed only for mean paper. In mills which make various kinds of papers care as to a suitable order in sorting must be taken. The neighborhood of other industries is not desirable for the manufacture of fine paper, because the purity of the paper is endangered by the production of dust and soot. In fine paper mills the boiler house must be located in the direction from which the wind most rarely comes. During dry weather the yards and roads of the mill must be regularly watered. Cleanliness of the workers is to be generally encouraged by means of bright, spacious work-rooms, lavatories, etc.—“Papier Fabrikant.”



#### JAPAN'S PAPER INDUSTRY.

The progress of Japan in the paper industry is described by Herr E. G. Sahlin, the Swedish Commercial Attache, in *Svensk Pappers Tidning*.

In the year 1900, Japan had 12 paper mills, with an aggregate capital equaling \$4,202,246, and operating 82 paper machines. The hands numbered 3,351, while the total production, 95,905,625 lbs., equalled in value \$3,505,555. By 1908, the mills had increased to 26 with an aggregate capital equalling \$12,658,025. The number of machines had risen to 164, and that of the hands to 6,009, while the output had grown to 227,874,780 lbs., of the value of \$6,845,491.

### CANADIAN MANUFACTURERS' ASSOCIATION.

There was a very large attendance of members at the annual convention in Toronto last week of the Canadian Manufacturers' Association.

President W. H. Rowley, in his address referred felicitously to the freedom of Canada during the past year from industrial strikes, which was no doubt due to the happy fact that manufacturers and artisans had fortunately sunk their differences and joined hands in protecting their common field of activity. Referring to the recent tremendous vote against Reciprocity, Mr. Rowley expressed the opinion that the country had heeded the cry of "let well enough alone," and wished the trade conditions of the country to continue unchanged. There was afforded proof that farmers and artisans were awakened to the value of the home market. The almost solid vote in Saskatchewan and Alberta in favor of reciprocity was in view of the moving consideration of a possible larger market, but he expressed the belief that with the increase of distributing and manufacturing centres throughout the west there would come a change of feeling, and the western farmer's appreciation of the home market would become intensified. It was gratifying to see in the answer of the electorate a recognition of the duty of conserving natural resources. Canada needed to be protected against the foreigners and against those who would destroy and waste the gifts which a beneficent Providence had bestowed. Disavowing any desire to discuss the merits of the reciprocity pact, he declared that "reciprocity in Canada is apparently dead beyond any chance of revival for a generation at least."

Mr. Rowley gave an emphatic denial to all reports that the Association had taken a part in the recent contest. True, it had at an early opportunity registered a protest against the Fielding-Taft proposals, but when they became a political

issue, the Association's attitude was one of strict neutrality, as in no way was it a political organization.

Discussing protection, Mr. Rowley pointed out that he did not advocate a higher tariff. The association and the individual members who composed it would be ill-advised to ask for material increases in the rate of duty. The vote of the people could not be distorted into a building permit to heighten the tariff wall. It endorsed the principle of reasonable protection. Other industries need protection just as manufacturing needs protection, and we should see to it that they get it. In using the word 'protection' this meant far more than mere tariff protection. The protection the ordinary tariff affords is well enough so far as it goes, but, like a coffer-dam, it is intended only as a temporary aid to permit the solid work of construction to go forward. We need to study German methods to know what practical protection really means. Reforestation, conservation of all our natural resources, experimental farms, seed inspection, elevators, cold-storage, transportation, biological stations, fish hatcheries, geological surveys, fire ranging and research of every kind, are as essentially a part of a comprehensive, practical protective policy as the tariff ever was or ever will be. These are the kinds of practical protection we should strive most earnestly to secure and to extend, because these afford the only safe and sane basis upon which to build for the future.

The Canadian Manufacturers' Association was well pleased with the prospect of the early appointment of a permanent tariff commission. Tariff-making was a science, and could be mastered only after long and patient study. In appointing a commission he thought Mr. Borden would insure a "square deal" to merchants, manufacturers and consumers.

On the subject of transportation Mr. Rowley pointed to the importance of extending and improving east and west



communication, and to keep as far as possible the movement of business in Canadian channels. Every ton of freight carried over a Canadian railway or in a Canadian vessel gave work to Canadian crews.

F. C. Schwedtmann, of the National Association of Manufacturers of the United States, spoke on "Co-operation." "Is it not," he asked, "in line with past development of manufacturers' and employers' associations to conclude that much good might come from closer touch between the organizations of the various nations? There was a time when the individual manufacturer was afraid to meet his competitor. Organization has changed all this, and competitors now know that they have far more to gain than to lose by meeting and comparing notes and exchanging experiences."

T. A. Russell, chairman of the Tariff Committee, in making his report, admitted a divergence of opinion between the farmers' and the manufacturers' views on tariff matters, and suggested the wisdom of them getting together and talking things over. The members of the Association were requested to render all possible assistance to the Government Tariff Commission when it should begin its labors, in making all data, etc., easy of access. In commenting on tariff matters, the consensus of opinion seemed to be adverse to any increase of the British preference, which was looked upon as being sufficient.

One session was devoted to consideration of the reports of the Parliamentary Committee and the Committee on Technical Education. In the former the principle of Mr. Alphonse Verville's bill providing for an eight-hour day for Government employees was condemned, and greater uniformity in Provincial laws advocated. Discussion centred on the question of workmen's compensation for industrial accidents. F. C. Schwedtmann, head of the German Commission on this problem, addressed the meeting, pointing out that in Germany the removal of

any safety device from factories was deemed a criminal offence. He declared that fifty per cent. of industrial accidents could be prevented by the provision of safeguards towards which both employers and workmen should contribute. Means should be devised by which the State would join with employers and employed in contributing to a fund to be administered by a commission on which all were represented.

The president-elect is N. Curry, of Montreal, and R. S. Gourlay, Toronto, is vice-president.



The sawmill of the Riordon Paper Company Limited, at Calumet, P.Q., which was destroyed by fire on July 12th, is being rebuilt. The foundations are now about complete. The mill building will be all steel sheathed in concrete, roofed and sheeted with corrugated galvanized iron. The boiler house and engine room will be of brick with steel trussed roof. The boiler house will be roofed with corrugated galvanized iron and the engine room with wood covered with gravel roofing. There will be three return tubular boilers with a total capacity of about 500 horsepower. The mill will contain a double cutting band saw with the necessary live rolls, edger, butting table, etc., and also shingle and clapboard machinery. The yard will be equipped with tracks. The steelwork and brickwork will be finished by the end of this month and the entire mill will be closed in by the middle of November, and will be ready for operation next spring. The capacity will be about 100,000 feet per day.

Thomsons', Limited, Toronto; capital, \$40,000. To take over the businesses of the Thomson Engraving Co. and James McHardy, and to engage in a general photo-engraving and lithographing, printing and publishing business. B. Place, book-keeper, and a number of Toronto barristers are named as incorporators.



## Pulp and Paper News.

An extension to the St. Lawrence Paper Mills at Mille Roches is being erected.

\* \* \*

A project is on foot to establish a large pulp and paper industry at Haileybury, Ont. C. C. Farr is interested.

\* \* \*

Nestos Timber Co., Ltd., Vancouver, B.C.; capital, \$50,000. To carry on business as timbermen and manufacturers of wood pulp and paper.

\* \* \*

I. H. Weldon, manager of the St. Lawrence Paper Mills, returned to Toronto from the West last month, after visiting his ranch near Edmonton.

\* \* \*

The Empire Paper Products Co., Sombra, Ont., are busy turning out tubular boxes, mailing tubes and similar products. Its new mill has a capacity of 60,000 boxes per day.

\* \* \*

The Campbell Lumber Company, of Weymouth, N.S., whose pulp mill was burned down some months ago, will go ahead with rebuilding operations and will have thirteen grinders in the new mill.

\* \* \*

John E. Webb & Company are erecting an addition to the machine and finishing rooms of the Ritchie & Ramsay coated paper plant at New Toronto. The contractors expect to be finished by the first of December.

\* \* \*

C. W. Gladwin, chief provincial fire warden, is of the opinion that loss from forest fires will be the lightest this year in the history of British Columbia. Rains at needed times, and the efforts of the 125 rangers kept all outbreaks confined.

\* \* \*

The Northumberland Paper and Electric Company, Limited, of Campbellford, Ont., has been granted permission by the Ontario Government to increase its capital stock from \$150,000 to \$500,000. Several extensions are contemplated.

Mr. Trower was made the recipient of a diamond pin and a gold-headed cane in Montreal last month on the occasion of his leaving the Riordon Paper Company, where he had been secretary-treasurer for eight years. Mr. Trower has accepted the management of a large real estate firm.

\* \* \*

The J. L. Morrison Co., Toronto, dealers in paper machinery, etc., and sole agents in Canada for Bertrams, Limited, Edinburgh, Scotland, have recently supplied Kidder slitting and rewinding machines to the Wayagamack Pulp & Paper Co., Three Rivers, Que.; the New Brunswick Pulp & Paper Co., Millerton, N.B.; and to J. C. Wilson & Co., Montreal.

\* \* \*

Following the disaster at Austin, Pa., where the dam of the Bayless Pulp & Paper Company gave way, and many were drowned, comes the news that the company will move to Canada. The company hold large timber properties in Quebec, and, it is said, intended to transfer their plant to Canada within a few years' time. The bursting of the dam has but hastened their action.

\* \* \*

The Wayagamack Paper Co. are putting into their new mill eight lava stone beater rolls manufactured by Marx & Company, London, England. The Eddy Co., and the Laurentide Paper Co., have these lava beaters in operation, and others are being installed in the Booth and the Brompton mills. Arrangements are also being made for the installation of one of these lava beater rolls for experimental purposes in the applied science department of McGill University.

\* \* \*

The paper makers won first prize for the most attractive display in a Labor Day procession at Ottawa. J. R. Booth supplied the material for float and decorations. Two large rolls of paper were surmounted by a gaily decked miniature

ship of green and white tissue paper. In the boat half a dozen little girls in sailor suits were seated. The whole was strung with tissue paper streamers and spruce twigs. The purpose was to exhibit the raw material and the finished product.

\* \* \*

The half-yearly dividend of 3½ per cent. has been declared on the preferred stock of the Spanish River Pulp & Paper Mills, Espanola, for the six months ending August 31st. Reports showed the earnings to be in excess of those of the same period last year, notwithstanding that the mills were closed during April while improvements were being effected. A party of financial men from Montreal and Toronto were the week-end guests of the Dominion Bond Company early this month, when they paid a visit of inspection to the plant. A special train conveyed the delegation.



#### NEW INCORPORATIONS.

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Roberval Paper Co., Roberval, Que.; capital, \$3,000,000. To manufacture chemical pulp and paper, and do a general lumber business.

\* \* \*

Similkameen Power Co., Ltd., Vancouver, B.C.; capital, \$10,000. To acquire water powers and conduct a river driving business for logs including pulp wood.

\* \* \*

A. L. Clark Investment Co., Ltd., New Westminster, B.C.; capital, \$100,000. To acquire the business of A. L. Clark, and among other things, to manufacture pulp and paper.

\* \* \*

Bellerive Lumber Co., Ltd., Montreal; capital, \$50,000. Lumber merchants, wood pulp manufacturers. L. Morin, J. Kennedy, A. E. Lamalice, J. Wilson, Jr., and W. Bessette, incorporators.

\* \* \*

Red Cliff Land & Lumber Co., Ltd., Victoria, B.C.; capital, \$400,000. To conduct a river driving business for

logs, including pulp wood, and to construct saw mills, etc.

\* \* \*

Canadian Fibre Wood & Mfg. Co., Ltd., Toronto; capital, \$40,000. Lumber, pulp and paper manufacturers. Incorporators, F. W. Burrows, W. H. Aitken, and Geo. Shepard.

\* \* \*

Upper Fraser River Lumber Co., Ltd., Vancouver, B.C.; head office in Montreal; capital, \$2,500,000. To erect and operate mills for the manufacture of lumber, wood pulp and paper.

\* \* \*

Interior Construction Co., Ltd., Winnipeg, Man. Among other things to build and operate pulp and paper mills. Incorporators include C. H. Forrester, D. MacLean, S. J. Kilpatrick, and A. K. Dysart, all of Winnipeg.

\* \* \*

National Lands Co., of Mexico, Ltd., Vancouver, B.C.; capital, \$800,000. To operate mineral claims in Mexico and elsewhere, and to carry on business as timber merchants, and to manufacture wood pulp and paper.

\* \* \*

Rennell Sound Development Co., Ltd., Vancouver, B.C.; capital, \$250,000. To carry on a general development business, and among other things, to acquire pulp lands, and construct and maintain pulp and paper mills.

\* \* \*

Automobile Publishing Co., Ltd., Toronto; capital, \$40,000. To publish a trade journal known as the "Canadian Automobile," and to conduct a general printing, publishing and engraving business. C. T. Penton and A. F. Penton, of Toronto, are among those named as incorporators.

\* \* \*

Paper Bottle & Package Co., Ltd., Toronto; capital, \$200,000. To manufacture and deal in bottles, packages, boxes, cases, baskets, pails and other receptacles made from paper or its product. Incorporators: W. A. Mackenzie, C. Swabey, J. N. Forrest, W. C. Mackenzie and Rose Conlin.

## Pulp and Newsprint in the United States and Canada

Report of the United States Tariff Board on Costs of Production

*(Continued from last issue)*

### Capital Investment and Depreciation.

Any full consideration of the subject of cost of producing newsprint paper involves some discussion of the question of the investment involved in relation to output. This is necessary both as a basis for estimating the charge to be allowed for depreciation and as a basis for understanding the real significance of the margin between mill cost and selling price. The ratio of capital investment to output in this industry is high. On this point, as on all others, conflicting claims are made. Some firms assert that the annual turnover is not more than 40 per cent. of the investment. No absolute figures are available, but it may be stated as an approximation that the annual product (at average mill cost) is not far from one-half the necessary capital invested.

In estimating investment the most convenient method is to take as a basis the daily ton of output of a balanced plant. By a balanced plant is meant a combination of ground-wood mill and sulphite mill with a paper plant such that the pulp needs of the latter are practically taken care of by the two pulp mills. To the cost of building and equipping the three mills must be added the cost of hydraulic development to produce the necessary horse-power for the grinders and additional power converted into electrical energy for incidental machines in the mills.

It is out of the question to make any general statements as to investment in woodlands for the supply of the raw material, since the policies of different companies vary so greatly and the prices of woodlands have fluctuated so widely under the influence of a speculative demand. So far as the relation of investment to cost is concerned this would not be a factor where the wood is bought

from subsidiary companies or charged into the pulp mills, at a price which includes profits and stumpage. Where, however, the wood is charged in at a price which represents only the absolute cost of cutting and delivering, the margin between mill cost of paper and selling price would be higher, and this higher margin would represent a return on the woodland investment as well as on the investment in plant.

For similar reasons the problem of the value of riparian rights and the cost of water storage is not susceptible of any general treatment. Storage facilities are a necessity for a water-power development, provided that a uniform yearly flow is needed in order to deliver the ground wood pulp with daily regularity. Its value might be estimated by comparison with the cost of the necessary auxiliary steam power required to provide a constant horse-power. A better method, if the cost of storage be disregarded, is to include in the investment the additional grinder capacity necessary to produce during periods of good water an adequate supply of ground wood pulp to carry the mill over the periods of low water. For example, if we assume that 80 tons of ground wood are used for each 100 tons of paper, a plant producing 100 tons of paper today would not be properly "balanced" (in the absence of adequate water storage) if its ground-wood capacity was only 80 tons per day. Estimates of the excess allowance naturally depend upon local water conditions. One well-equipped plant making 100 tons per day is able to supply its own pulp with a grinder capacity of 140 tons of ground wood in the face of bad water conditions. Even higher estimates have been made in some cases, but this is probably a fair sample, on the basis of no water

storage. The better the storage the smaller the number of grinders necessary.

The cost of hydraulic development is purely a matter of local conditions and may vary from below \$30 to over \$100 per horse-power.

A desirable site for a water-power development is valued, first, by the extent of its drainage area; second, its run-off per square mile; third, the constancy of this run-off, which fixes the average yearly flow; fourth, the reservoir possibilities; fifth, the length and height of the dam and the necessary length of the penstocks and flumes to carry the water to the turbines; and, sixth, by the riparian rights.

Again, a power site in a remote location would not stand as high an investment as would a site in a location where its cost of development would be regulated on the basis of what the power could be disposed of for manufacturing purposes.

Climatic conditions are also a factor in the cost of developing a power, due to their influence on the fluctuation in flow from severe winters in northern climates and dry summers in warmer climates. It is obvious, therefore, that the value of a water-power for a ground-wood property must be determined entirely by the local conditions. This variation being so great, any attempt to fix a definite cost per ton of production without exact knowledge of the site is problematical.

The calculation in any case would depend on the amount of horse-power needed per ton of product and the cost of development per horse-power. No certain figure can be given for either.

Taking the matter of horse-power for the grinders per ton of ground wood, this varies in different plants from 60 to 70 or more. If 70 be taken for example, and it is assumed that 80 tons of ground wood is needed for 100 tons of paper, the cost of hydraulic development for the ground-wood mill would be:

$$(1) \text{ If the cost is \$30 per horse-power: } \frac{5,600 \text{ H.P.} \times \$30}{100} = \$1,680 \text{ per daily}$$

ton of paper.

(2) If the cost is \$100 per horse-power:

$$\frac{5,600 \text{ H.P.} \times \$100}{100} = \$5,600 \text{ per daily}$$

ton of paper.

Further allowance must be made for additional power for electrical energy. Seventy-five or eighty horse-power per ton of paper per day is a common estimate for a balanced plant.

Such calculations do not provide for excess grinding capacity, to make sure of a uniform supply of pulp in absence of water storage. If this should be included on a basis of 140 tons ground-wood capacity to 100 tons of paper, with 65 horse-power per ton of ground wood, and 10 additional horse-power per ton of paper, we should have 9,100 horse-power for grinders and 1,000 horse-power for other purposes. Then

(1) At a cost of \$30 per horse-power:

$$\frac{10,100 \text{ H.P.} \times \$30}{100} = \$3,030 \text{ per daily}$$

ton of paper.

(2) At a cost of \$100 per horse-power:

$$\frac{10,100 \text{ H.P.} \times \$100}{100} = \$10,100 \text{ per daily}$$

ton of paper.

The construction cost of the balanced plant will be lower than the cost for the three separate units built independently. The equipment, which is the largest item of the total cost, would be the same.

The equipment comprises:

Ground-Wood Mill. — Three pocket grinders directly connected to horizontal turbines, centrifugal screens, 72-inch wet machines, hydraulic pulp presses, log



hauls, slasher saw rigs, barkers, splitters, conveyors, etc.

The auxiliary power plant for driving machinery other than the grinders is commonly provided by electric current generated by an independent horizontal turbine. The power, derived through burning the waste wood, is utilized for heating and other incidental auxiliaries.

**Sulphite Mill.**—The equipment of the sulphite mill comprises:

In the wood room: Log haul, saw rig, barkers, splitters, chippers, crushers, chip screen, conveyors, and elevators. The refuse from this operation being conveyed to an auxiliary shaving-burning boiler in the power house, and utilized for heating the sulphite mill.

In the digester house: Digesters, and the necessary pumping equipment.

In the blow-pit room: Blow pits and pumps.

In the wet machine and screen room: Complete, diaphragm screen equipment with auxiliary feltless wet machines and slushers.

**Paper Mill.**—In the beater room: Pulp openers or broke beaters and the usual beater, jordan chest equipment, and pumps.

In the machine room: Fourdrinier paper machines, screens, slitters, reels, drum winders, chests, suction pumps, and pumping equipment.

In the finishing building: Reels, slitters and cutters.

It will appear from the above statements that the calculation of necessary capital investment per ton per day is by no means an easy matter. The lowest actual balanced mill which we have examined in this regard shows \$15,000. The lowest calculations we have received (from a professional engineer) show an estimated range from \$15,000 for a 25-ton mill, with \$13,000 for a 50-ton mill, and \$10,000 for a 100-ton mill to \$9,700 for a 200-ton mill. These last figures do not include any part of the cost of hydraulic development, so that the totals would be increased by this amount, which, on the basis of 75 horse-power

per ton, would be \$2,250 if the cost per horse-power is \$30, or \$3,750 at a cost per horse-power of \$50, or \$7,500 at a cost per horse-power of \$100.

It may be said that in general terms under normal conditions an investment for hydraulic power and fully equipped balanced plant, of best construction and equipment, and a capacity of 100 tons per day, ought to be fully covered by \$17,000 per ton per day. For a plant of smaller capacity the cost would be somewhat greater. This does not include either cost of water storage facilities or provision for extra grinding capacity to offset lack of such storage. If these were included the total might be increased to \$20,000. Either of these figures should be taken as a liberal estimate.

Besides the actual investment for plant and power development the element of working capital is a large item in this industry. We have varying statements on this head from \$2,500 to \$6,000 per ton per day. In the report made to us by a competent engineer it is calculated by him that working capital required per ton per day would be \$3,200 for a 200-ton plant, \$3,500 for a 100-ton plant, and \$3,900 for a 50-ton plant.

If working capital is included as a part of the total investment, no interest charge on this item should be included in cost. If, however, the investment is taken to represent only construction and development and the working capital is borrowed outside, the interest should be included. On the basis if \$3,500 per ton per day this charge would be from 50 to 60 cents per ton.

### Depreciation Charges.

Under the head of depreciation it becomes important, first, to define just what is meant by the term, and what is covered as well as what is not covered by the estimate of depreciation as here given. First, then, it is assumed that the plant will be kept in perfect repair in so far as that is humanly possible.

All charges for maintenance, repairs, renewals of worn-out parts or machines (not involving new equipment or increased production), and all upkeep expense shall be charged to operating expense.

Depreciation is that charge, in the form of a per cent. on capital consumed in construction and equipment, which, spread evenly over the estimated life of the plant as a whole, will provide a fund which at the close of the life of the plant will equal the investment. It is not a charge in lieu of a maintenance charge, but in excess of actual maintenance and upkeep, to take care of that inevitable decay which ultimately comes in spite of renewals and repairs. It is a charge which will return the original investment when the plant itself is past repairing. It includes the creation of a fund to take care of the obsolescence of machinery by reason of new inventions or improvements of machinery which renders the equipment antiquated and no longer economical. It is, in short, an insurance fund against the ravages of mechanical improvements and processes and the decay which inevitably comes with time.

As to obsolescence, it is believed and presumed that the Fourdrinier has about reached the limit of perfection, and an up-to-date machine will not be displaced before it would be entirely worn out, barring, of course, some complete revolution in method of production of paper which would render the Fourdrinier itself obsolete. That 3 per cent. on actual construction cost (which is what is here meant by capital investment) will take care of depreciation and obsolescence of the whole plant is the estimate of competent engineers. This will provide a fund in 33 years equal to the original cost. With adequate upkeep, of course, a plant will last much longer than this, but the element of obsolescence might absorb the difference.

There are specific parts of the plant, such as water development, where the depreciation would not be more than half that amount; in such parts as

foundations, etc., it would be nothing, practically, while on some parts of the equipment it would be entirely inadequate; but taking the plant and the investment as a whole, 3 per cent. is ample to cover all actual depreciation in excess of upkeep.

The high cost of plant and equipment in the paper industry makes the depreciation charge per ton figure as a high percentage of the cost of product if entered as a cost item. As already stated, since most of the mills did not charge off depreciation to cost, the depreciation item was taken out of all the schedules to make the figure comparable. In some cases the amounts actually charged to depreciation and taken out of the figures, as presented in the tables, were from \$1 to \$1.92 per ton.

If the investment cost per ton per day be taken at \$15,000, the total investment for a 100-ton plant would be \$1,500,000, and a 3 per cent. depreciation charge would amount to \$1.45 per ton. On a basis of \$17,000 per ton per day as an investment, the depreciation charge would be practically \$1.75 per ton of paper. The basis here is full production for 310 days in the year. Paper mills do not, as a rule, run on Sunday. Pulp mills commonly do.

If a 3 per cent. allowance for depreciation be excessive, the charge per ton would, of course, be correspondingly reduced. It should be said, furthermore, that unusually high investment of capital per ton per day is due primarily to increased cost of hydraulic development rather than to equipment, and that on this part of the investment the depreciation is practically nil; so that a 3 per cent. charge on a total investment, of which a relatively large proportion is for power development, would be excessive.



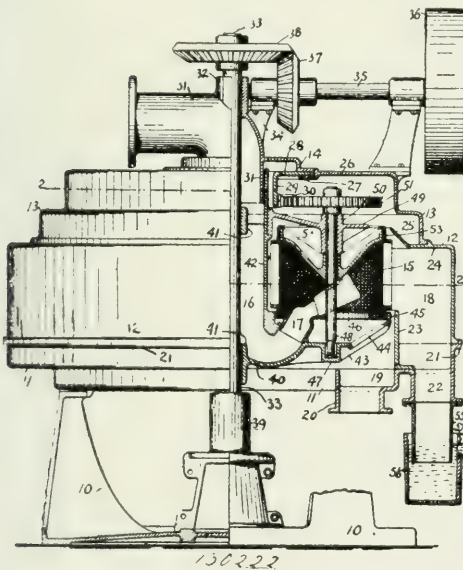
Alberta Townsite Co., Ltd., Vancouver, B.C.; capital, \$50,000. To carry on business as timber merchants and operators of saw mills and pulp mills.

## Recent Canadian Patents Affecting the Pulp and Paper Trades.

### No. 130,222. Centrifugal Pulp Screen.

—Charles Walter Thomas, Edgewater, and Charles Smith, Belleville, assignee of a half interest, both in New Jersey.

The invention comprises in connection with a centrifugal screening machine, a central vertical shaft, a series of individual vertical cylindrical screens mounted upon and revoluble on the axis of said shaft, vertical shafts extending through the individual screens and connected therewith, gear wheels on the upper ends of said shafts above said

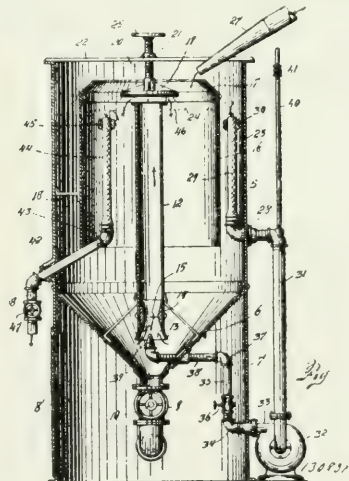


screens, and a stationary gear for imparting independent rotary motion to said gear wheels and screens during the revoluble motion of the screens, the said screens each having an inverted cone-shaped cover closing its upper end and each cover at its inverted apex having a tubular opening for the screen shaft, combined with a plate above the screens affording vertical bearings for the upper portions of said screen shafts, a feed hopper, and nozzles extending therefrom to within the screens.

### No. 130,831. Pulp Agitating Apparatus.—William C. Paterson, Denver, Colorado.

This agitating apparatus has a tank having a centrally located open-ended stand pipe, an annular partition supported in the upper portion of the tank surrounding the stand pipe and forming an annular chamber between the said partition and the wall of the tank, and means for drawing off solution from the said annular chamber and discharging it into the lower extremity of the stand pipe.

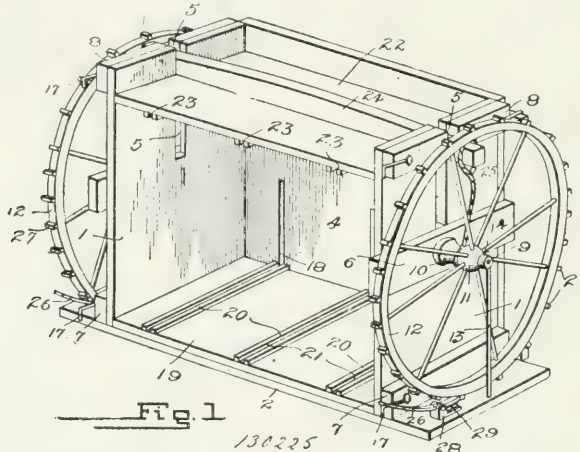
There are several tanks, each having a centrally located open-ended stand-pipe, an annular partition in its upper portion surrounding the stand pipe and



forming an annular chamber between the said partition and the wall of the tank, means for removing the solution from the annular chamber of each tank and discharging it into the lower extremity of the stand pipe of the tank under pressure, and means for drawing off solution from the compartment within the annular partition of each tank except the last, and discharging it into the adjacent tank, the initial tank being equipped with means for feeding the material to be treated to the tank, and the last

tank being equipped with means for continuously drawing off solution, whereby the level of the pulp in all the tanks may be kept approximately uniform.

**No. 130,225. Paper Baler.**—Charles Fair and Charles Schick, assignee of a half interest, both of Davenport, Iowa.

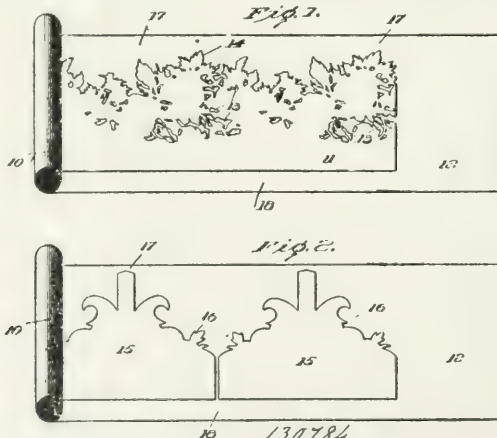


A baling press comprising a press box, reinforcing strips for the ends of said box, an axle projecting from the central reinforcing strip, a swinging drum mounted upon said axle, an operating wheel mounted upon said drum, supporting means for the outer end of said

**No. 130,784. Wall Paper.**—Robert B. Griffin, New York City. A new article of manufacture being a frieze or border of wall paper having an ornamental design and removed portions arranged at various places within the design, a fabric wider than said frieze, the edges thereof extending beyond the

edges of the frieze, the fabric and frieze being superimposed and rolled together, the ornamental design being next to the inner surface of said fabric.

**No. 130,233. Metallized Paper Manufacture.**—La Société d'Exploration des Brevets Dupuis, assignee of Edeuard



axle, pressing means operated by said drum, and means loosely mounted upon said intermediate strip and adapted to engage the rim of said wheel to retain said wheel in a fixed position.

**No. 130,784.** Dupuis and Charles Dupuis, all of Charenton, Seine, France, 3rd January, 1911.

This is a process for the manufacture of metallized paper for cinematographic



bands consisting in obtaining on a polished nickel cathode an extremely thin electrolytic deposit of silver, coating the silvered cathode with a celluloid varnish, allowing to dry, coating said cathode with an adhesive mixture having gum-lac as basis, allowing to dry, coating glazed paper with the same mixture, applying the prepared cathode to the paper, submitting the whole to a pressure at a suitable temperature and separating mechanically from the cathode the silvered paper to which the silvering then strongly adheres.



**PAPER MACHINE HOUSE FOR THE  
ARTHUR D. LITTLE, INC.,  
LABORATORY.**

Construction is already under way on the paper machine house to form a part of the new laboratory of Arthur D. Little, Inc., engineers and chemists, Boston, Mass. This miniature paper mill will be L-shaped, consisting of two rooms measuring approximately 25x35 and 25x52. Being located in the Park System of Boston its exterior will be made especially attractive with brick and stucco walls and tiled roof. Although the entire equipment will be a miniature with a capacity of only 5 to 10 per cent. of that of an ordinary machine, each piece of apparatus will be perfect in itself.

The combination cylinder and Fourdrinier machine which is being made by The Pusey & Jones Company, Wilmington, Delaware, will be constructed along the same lines as the machines made by this company for the Forestry Service and the Bureau of Standards, but will differ somewhat in the method of driving as well as in the number of calendar rolls and suction boxes. Its length over all will be about 44 feet. The balance of the equipment will include two 50-lb. beaters with washers, pulp washer, Jordan, soda, sulphite and rotary digesters, steam generating plant, bleach dissolving system, vacuum pump, stuff chests and pumps. The entire equipment will

be motor-driven. It will be possible to turn out paper 26 to 28 inches wide at a rate of anywhere from 7 to 260 feet per minute. This plant will be unique as the only one in the world to be devoted to the practical testing on an adequate scale of various fibres considered suitable for paper making.



**WAVY PAPERS.**

A writer in *Wochenblatt*, enumerates the various causes which may produce wrinkles and cockles in paper, and the means for preventing them. So far as the preparation of the stuff is concerned, wet beaten stuff is especially liable to give cockly papers. Heating the stuff before running it on to the wire will cure this tendency to great extent, but such treatment is not good for hard sized papers, since warm pulp never gives such hard sizing as cold; it is, however, very useful for softer sized papers. The extensive use of "broken" paper in the furnish is another cause of wavy papers, since "broke" imparts a certain degree of wetness and closeness to the sheet, but if this effect be carried too far it is difficult to keep the paper flat. Waviness may be caused by improper manipulation on the machine, and it may be to a large extent prevented with wet beaten stuff by careful regulation of the machine. The great point to be aimed at is even felting of the fibres and uniform texture, followed by the most complete and uniform removal of the water before the paper comes on the drying cylinders, and gradual and uniform drying on the latter. The suction roll is a great help in preventing waviness of wet beaten papers by producing a well-drained sheet. In any case, full and efficient use of the suction boxes is one of the most important points to be looked after in obtaining a strong flat paper; the pressing, drying, and calendering of the paper are all thereby facilitated. A

further condition for the manufacture of a smooth even paper is a regular and smooth flow of the pulp on to the wire, with even distribution and absolutely horizontal position of the breast and tube rolls; the adjustment of the slices should be constantly watched. Any irregularity in the sheet shows itself at the presses and particularly on the driers, the thicker places remaining moist longer than the thinner places. For a similar reason the accurate alignment of the press rolls is absolutely essential. Slow and perfectly uniform drying is the great thing to be aimed at, and all the conditions previously enumerated have this object in view. The capacity of the drying cylinders must be ample to dry the paper at a low steam pressure, preferably not exceeding 15-lb. per square inch. A fertile cause of cockly paper is too sudden heating. A cotton drying felt is of great assistance on the first cylinder, because it helps the moderate and uniform heating up of the paper by retaining the moist steam for a longer time and in larger quantities than a woolen felt. Woolen felts are kept too moist on the first cylinder and quickly wear away in consequence. On the other hand, woolen felts are preferable on the latter cylinders, since they stand the heat better and are more permeable than cotton felts. Tight stretching of the felts and consequent pressing of the paper against the cylinders greatly help the flatness, also in the case of thin papers tightly stretched felts prevent undue drying at the edges. If the steam rising from the paper curls round the edges of the paper, it causes them to become wavy immediately the paper leaves the drying cylinder; when this happens, the rising steam should be baffled so that it does not come in contact with the edges of the web. Other kinds of cockles may be produced during the storage of paper, especially if the paper be damper or drier than the atmosphere of the warehouse. For this reason the atmosphere should not be exposed to great changes

of temperature or humidity. Each kind of paper requires a particular degree of damping in order to mature it without wavy edges. The edges of the stacks of paper respond most rapidly to the effects of the atmosphere, and whether the paper be too damp or too dry, the result is that the edges are effected first and shrink or expand whilst the centre remains unaffected, thus causing wrinkles. The paper should be stacked as closely and solidly as possible, in order to avoid draughts between the packages. Lastly, a future cause of wrinkles may be sought for in careless plate-glazing; if the packs of metal and paper sheets be allowed to slip when inserting into the glazing machine, creases are formed owing to undue local tensions; for instance, if the pack be inserted between the rolls before they have been properly started, and have attained their full momentum.



#### NEGLECT OF WEARING QUALITY IN PAPER.

In this country, up to the present time, little or no attention has been paid to what in case of most papers is one of the most reliable and significant indications of general quality, namely the ability of the paper to withstand wear. Paper for money or for permanent records, loose leaf books, maps, school books, works of reference, blue prints, children's books, wrapping, card stock for catalogue files, folders, and many other uses, should exhibit this property in the highest degree consistent with other requirements of the specification. Although in the past reliable methods and apparatus have not been available, in the United States at least, for determining wearing power, there is no longer any excuse for ignoring this essential element of quality, the numerical value of which may now be determined with the utmost accuracy with standard apparatus. Arthur D. Little, of Boston, Official Chemist of American Paper and Pulp Association.

## Montreal Pulp and Paper News

(Special to Pulp and Paper Magazine.)

Montreal, October 5, 1911.

Practically all the wood pulp and print paper produced in New Brunswick until August 1st, 1912, will enter the United States free of duty. This is made possible by a revised rule made recently by Acting Secretary of the United States Treasury, Curtis, under the only operative clause of the Canadian reciprocity agreement. The surveyor-general of customs of New Brunswick advised the Treasury Department that the new law of the province restricting the exportation of pulp-wood did not apply to lands operated under licenses issued or renewed prior to October 1st, on which date the act became effective. The lands are used under long term leases, governed by yearly licenses, and August 1 is the date for renewal. Consequently until August 1, 1912, there will be no American import tax on pulp-wood or print paper originating from those lands.

Regulations also were issued by Mr. Curtis governing the taxation of Canadian pulp-wood and print paper coming partially from Crown Lands and partially from private lands. American customs collectors will insist upon sworn statements showing the percentage of origin, assessing duty on products of Crown Lands where the importation is restricted and entering the remainder free.

### Pulp and Paper Clauses.

"It is not quite correct to say that the wood pulp and print paper clause is the only operative one of the Canadian reciprocity agreement, because the one under discussion was divorced absolutely from the pact and made a separate measure," said Mr. Stevenson, sales manager of the Riorden Paper Company recently.

"The question is one that is being fought vigorously by the paper interests,

for agents of European houses and mills are getting after the United States Government, too. What is bothering the manufacturers of chemical wood pulp and paper is that the United States is giving Canada something in letting the news print manufactured in Canada from wood cut on private lands into their country free of duty, the tax being imposed only on the cut of Crown or public lands. The manufacturers of Sweden, Norway, Germany, Austria, Finland and Russia claim that it is an unfair advantage, and want some concessions too, so the question is an involved one."

### Laurentide Paper Company.

Laurentide Paper has earned close on to 29 per cent. on the common stock.

The profits for the year ending June 30th, after providing for bond interest, etc., were \$713,539, compared with \$516,304 the year previous.

In his statement to the shareholders, Sir William Van Horne says of the new deal: "The authorized capital of the Laurentide Co., Ltd., is \$10,000,000, of which \$7,200,000 is now issued, leaving \$2,800,000 for the future purposes of the company. The exchange of all the issued stock of the new company for the shares of the old company gives the shareholders of the Laurentide Paper Company exactly the same proportionate interest in the issued stock of the new company as in the old."

The total profits for the year were \$909,582, and bond interest, etc., \$196,042. The sum of \$20,000 was set aside for depreciation.

### Manufacturing Conditions.

Pulp men are complaining loudly of the lack of water to keep their mills running. There has been very little rain

all season and the streams are unusually low for this time of the year. There have been some rains of late but they do not seem to be having much effect on the height of the water. Several saw mills are on the verge of closing down owing to the difficulty of obtaining water. Large quantities of logs are left high and dry on the banks in certain sections, and the mill-men express doubts as to whether they will be able to get them into the water this fall or not. One man remarked that the Ottawa River in particular, among larger streams, was low, all its tributaries being in a similar condition.

For some months past there has been almost no pulp to spare in Canada. Stocks are depleted, and were it not that the demand from the United States is light, the price would have advanced to an exceptional level. The dullness of industry in the United States is naturally reflected on the demand for paper and this in turn on the consumption of pulp. The United States is now Canada's great market for pulp, and conditions across the border are felt here immediately. Fortunately for Canada, however, the United States is being thrown more and more on the mercy of this country, when it comes to the matter of obtaining pulp, so that additional quantities are being required from Canada even when the total consumption of pulp is showing a falling off.

One pulp man reports hearing of a sale of mechanical pulp at \$24 at the mill. This, however, he allows must have been under circumstances which could not properly be considered as normal, inasmuch as \$19 is commonly considered a proper figure.

#### **New Mill at Three Rivers.**

One of the results of the prohibition of the export of pulp-wood grown on Crown Lands by Sir Lomer Gouin, in the Province of Quebec, is seen in the construction of the Union Bag and Paper Company's mill at Three Rivers.

The mill has just been built, the first installation, which was mainly of a temporary character, being for 40 tons of pulp. It has now been decided to increase the output to 100 tons as quickly as possible. The power for the operation of the mill is electricity, which is taken entirely from the Shawinigan Water and Power Company. When the mill is in full operation it will require no less than 6,000 horse-power.

Another development at Three Rivers is in connection with the Wayagamack Company. This company is installing a sulphate pulp mill with a capacity of about 100 tons of pulp per day. This may not all be installed this year, but it is expected that half will be. The pulp is for the manufacture of Kraft paper, which is becoming such a factor among commercial papers throughout the whole country. Three Rivers is certainly attracting a good deal of attention just now from a lumber and pulp standpoint.



The Brompton Pulp and Paper Company, of East Angus, P.Q., are redesigning their paper mill and expect to make it one of the largest and most modern paper mills in America. They will install a 22x20 Robb-Armstrong horizontal side-crank engine, especially designed by the Robb Engineering Company, Ltd., Amherst, N.S., for the operation of paper machines at variable speed. This engine, which has about 400 horse-power capacity, will change from 100 to 200 revolutions per minute, which makes a speed variation of 2 to 1. Equipped with two pulleys of different sizes, the total variation will be about 6 to 1. This engine to be equipped with duplicate oiling system. The constant speed paper machines in the same plant will have a Robb-Armstrong 13x12 engine, 85 horse-power. This engine in addition will be used for driving an electric generator for lighting purposes.



**LAURENTIDE PAPER COMPANY.**

Annual Report of the Laurentide Paper Company, Limited, for year ended June 30th, 1911:—

The profits on the Company's business for the year ended June 30th, 1911, after providing for interest and other charges were \$713,539.89.

From the profits have been paid four quarterly dividends of 1¼ per cent. each on the Preference Stock, and five quarterly dividends of 2 per cent. each on the Common Stock, and \$20,000 has been added to the depreciation reserve, leaving a balance of \$362,171.14 to be carried forward.

Under authority from the shareholders granted at a Special General Meeting held on the 30th August last, the undertaking and business of the Laurentide Paper Company, Limited, as the same existed on the 30th June last, have been sold to the Laurentide Company, Limited, for the consideration of 72,000 shares of that company's capital stock of the par value of \$7,200,000. The shares of the Laurentide Company, Limited, have been allotted and are now ready for distribution amongst the shareholders of the Laurentide Paper Company, Limited, in the proportion of two shares of the new company's stock for each share of the stock of the Laurentide Paper Company, Limited, surrendered for exchange.

The authorized capital of the Laurentide Company, Limited, is \$10,000,000 of which \$7,200,000 is now issued, leaving \$2,800,000 for the future purposes of the company. The exchange of all the issued stock of the new company for the shares of the old company gives the shareholders of the Laurentide Paper Company exactly the same proportionate interest in the issued stock of the new company as in the old.

Working Account for the year ended 30th June, 1911:—

Mill nets from ground wood, sulphite pulp, paper and card board .....	\$831,507.58
Profits from lumber and miscellaneous .....	78,475.03
	<hr/>
	\$909,582.61
Deduct—	
Band interest and other charges .....	196,042.72
	<hr/>
Profits for the year.....	\$713,539.89

**Profit and Loss Account.**

July 1st, 1910—By balance .....	\$619,745.86
June 30th, 1911—By profits for year .....	713,539.89
	<hr/>
July 2nd, 1910—To dividend on Common Stock .....	\$ 59,626.00
October 1st—To Dividend on Common Stock .....	60,758.00
January 2nd, 1911—To Dividend on Common Stock ..	67,606.00
April 1st—To Dividend on Common stock .....	68,176.00
June 30th—To Dividend on Common Stock, due July 3rd, 1911 .....	47,348.00
October 1st, 1910—To Dividend on Preferred Stock ..	10,827.25
January 2nd, 1911—To Dividend on Preferred Stock ..	9,836.75
April 1st—To Dividend on Preference Stock .....	3,844.75
June 30th—To Dividend on Preference Stock, due July 3rd, 1911 .....	3,346.00
June 30th—To Depreciation Reserve .....	20,000.00
	<hr/>
Surplus .....	\$981,917.00

Assets and Liabilities, June 30th, 1911:—

**Assets.**

Mills, buildings, plant and machinery .....	\$3,308,734.86
Timber lands .....	609,713.74
Real estate (workmen's houses, etc.) .....	230,173.80

Railway siding and rolling stock .....	32,450.40
Logs and supplies .....	635,562.10
Merchandise .....	201,116.13
Mill supplies .....	236,306.00
Forestry .....	3,364.46
Insurance and taxes .....	15,644.70
Accounts receivable .....	525,938.39
Bills receivable .....	154,700.12
Cash in hand and in banks	142,360.85
Call loan .....	50,000.00
Investments .....	49,500.00
Deferred charges .....	2,888.26
	<hr/>
	\$6,198,453.81

#### Liabilities.

Common stock .....	\$3,408,800.00
Preference stock .....	191,200.00
Bonds .....	1,200,000.00
Less sinking fund investment .....	285,525.37
	<hr/>
Bond interest (due July 3rd, 1911) .....	\$ 30,000.00
Preference stock dividend (due July 3rd, 1911)....	3,346.00
Common stock dividend (due July 3rd, 1911)....	68,176.00
Wages .....	31,710.41
Accounts payable .....	264,600.11
Employees' insurance reserve .....	7,728.07
Contingent account .....	60,501.59
Depreciation reserve .....	230,000.00
Surplus .....	981,917.00
	<hr/>
	\$6,198,453.88



#### THE SULPHATE PROCESS.

The sulphate process has an advantage over the sulphite process inasmuch as according to the former the organic substances contained in the black lye are, as a rule, sufficient for the evaporation of the waste lye necessary for recovering the alkali. A sample of the recovered raw soda had the composition given in this table:—

Table I.

	Per Cent.
$\text{Na}_2\text{CO}_3$ .....	61.73
$\text{Na}_2\text{S}$ .....	21.50
$\text{Na}_2\text{SO}_3 + \text{Na}_2\text{S}_2\text{O}_3$ .....	7.33
$\text{NaOH}$ .....	3.50
$\text{Na}_2\text{SiO}_3$ .....	1.22
$\text{Na}_2\text{SO}_4$ .....	2.78
$\text{Fe}_2\text{O}_3$ .....	0.04
unlöslich + Verlust ...	1.90

The bad smelling gases arising from the boiling and the regeneration of the alkali are troublesome in the sulphate process.

According to Klason, a quantity of alkali of about 20 per cent.—in proportion to the dry wood—is necessary for completely dissolving the lignine. This quantity of alkali has also proved satisfactory in practice. A larger excess would dissolve considerable quantities of cellulose. In order to study these actions and also the question of odor, boiling processes were carried out with lye whose content of hydrate of soda and sulphide of sodium varied. During each boiling process, 400 g. of absolutely dry pine wood were treated in an experimental boiler, the temperature during all boiling processes being maintained between 160 and 165 degs., and the boiling lasting four hours on an average. Cylindrical boilers, with a capacity of about 25 cbm., and rotating on the short axle, are used in practice and a lye of 16 to 20 deg. Bé is worked with, which contains per litre:—

$\text{NaOH}$ .....	90—100 g.
$\text{Na}_2\text{S}$ .....	25— 30 g.
$\text{Na}_2\text{CO}_3$ .....	about 10 g.

The duration of the boiling process is three to six hours, and the temperature is maintained during this period at 150 to 170 degs. The boiler was stationary during the experimental boiling operations, and in order to keep the shavings constantly moistened it was necessary to keep the lye less concentrated (about 6° Bé). The gases arising from the boiling operation passed through a cooler to

a receiver, wherein the major part of the vapor remained, while the non-condensed gases passed through five absorption flasks filled with cyanide of mercury for the quantitative determination of the sulphuretted hydrogen and methyl mercaptane; mercuric mercaptide  $\text{Hg}(\text{SCH}_3)_2$  and mercuric sulphide ( $\text{HgS}$ ) are thus formed, both insoluble compounds, which are dried in the air and determined by weighing. For determining the mercaptane, the precipitate is boiled with hydrochloric acid;  $\text{HgS}$  is not attacked, but the mercuric mercaptide is decomposed. After the boiling operation was terminated, distillation took place at an ordinary pressure during the conversion of mercaptane. The latter is freed in the above-mentioned manner, absorbed in alcohol and titrated with iodine. The accompanying Table II. contains the result of the boiling tests.

Table II.

1	125.0 g	25%	61.9%	1.1 g	20.5 g
2	125.0 g	25%	62.7%		20.5 g
3	135.0 g	23%	61.8%	1.2 g	13.3 g
4	165.0 g	25%	54.4%	1.0 g	28.1 g
5	185.0 g	35%	57.7%	0.5 g	21.1 g
6	215.0 g	24%	46.0%	0.1 g	37.2 g
7	218.0 g	22%	54.0%	0.1 g	24.9 g
8	232.0 g	14%	51.6%	0.1 g	26.7 g
9	232.0 g	37%	45.2%	1.1 g	26.7 g
10	232.0 g	22%	55.5%		26.6 g
11	275.0 g	85%	50.3%	3.7 g	27.2 g
12	275.0 g	25%	46.3%	1.5 g	27.2 g

Column 1 indicates the number of boiling operations.

Column 2 the total quantity of alkali per kilo of absolutely dry pine wood (hydrate of sodium and sulphide of sodium were employed, the latter being always reckoned as hydrate of sodium).

Column 3 the content of  $\text{Na}_2\text{S}$  reckoned as  $\text{NaOH}$ .

Column 4 the yield of pulp.

Column 5 mercaptane.

Column 6 the concentration of the white lye in  $\text{NaOH}$  per litre.

As anticipated the quantity of alkali during the boiling operations 1—5 was not sufficient completely to reduce the material.

The quantity of mercaptane obtained varied considerably in the different boiling tests. With a high content of  $\text{NaOH}$ , less mercaptane was set free. In the manufacture of kraft pulp where the boiling must always take place with a small quantity of alkali, the odor is more strongly perceptible. During the boiling operation sulphuretted hydrogen is not formed in large quantities. It also follows from the tests that an increased content of  $\text{Na}_2\text{S}$  in the white lye increases the quantity of mercaptane formed during the boiling operation. The greater the loss of alkali in manufacture, the higher the addition of sulphate of sodium—the higher the content of sulphide of sodium in the boiling lye, the stronger the odor. The white lye should on no account contain more than 20—25 per cent. of the alkali as  $\text{Na}_2\text{S}$ . It may be assumed when employing a sufficient quantity of alkali, about 100 g of methyl mercaptane will escape from the boiling gases per ton of dry wood and about 220 g of methyl mercaptane per ton of dry cellulose. When employing an insufficient quantity of alkali, the content of mercaptane may increase tenfold. On the other hand, a considerable quantity of alkali will assist the formation of methyl sulphide, the odor of which is much weaker than that of mercaptane.

A comparison of the experiments 8, 9 and 10 in Table II—a yield of 50 per cent. cellulose having been obtained on an average—with an experiment made previously by Klason according to the old soda process—a yield of only 36.7 per cent. fibre having been obtained—shows that, as compared with the sulphate process, the pure soda process gives a yield which is at least 10 per cent. less than that obtained by the sulphate process.

Table III.

1	201	20.5	44	....	35
2	208	29.7	43.1	....	37
3	205.7	26.5	48	0.25	37.4
4	198	29.7	49.2	....	35.2
5	210	25.9	48	0.3	37.3

The boiling with fir-wood gave the values indicated in Table III., calculated per kilo of absolutely dry fir-wood. In this table:—

Column 1 indicates the number of the boiling operation.

Column 2 the total quantity of alkali in g. NaOH per litre.

Column 3 content of  $\text{Na}_2\text{S}$ , reckoned as NaOH.

Column 4 yield of pulp.

Column 5 mercaptane in g.

Column 6 concentration of the white lye in g. NaOH per litre.

The pulp was thoroughly boiled according to boiling operations 1, 2 and 5, but insufficiently, according to boiling operation 4. The quantity of mercaptane amounted to 250 to 300 g per ton of wood, thus about twice as much as with pine wood.—Papier-Fabrikant.



### RECIPROCITY DEFEATED.

(From the Paper Mill.)

Reciprocity received a crushing defeat at the polls in Canada on Thursday, September 21, the Liberal Government being turned out and the Conservatives, headed by Mr. Borden, winning the contest in a handsome manner. It is very evident that Canada, unlike the mother country, is not a believer in free trade. The protection doctrine in the Dominion has made great strides, and will probably make greater, while any hope that may have existed anywhere on this side of the line that the restrictions in Ontario and Quebec would be modified or repealed, is swept out of existence. There is not the slightest chance that they will be in the face of the opinion of the people as recorded on Thursday.

It is well that reciprocity failed. It deserved to. It was forced through on this side of the line to suit special interests. It was an unfair proposition, and the paper industry of this country was

burdened solely that these interests might gain their demands.

The ludicrous position in which President Taft and the Congressional doers of his bidding are now placed is seen when it is considered that notwithstanding that Canada has slapped our face—and slapped it hard, so far as reciprocity is concerned—we will continue to admit her paper made from pulp and wood free of duty, and that provision played its part in the havoc wrought the Liberals on September 21. This free-will offering on the part of President Taft in opening our paper market to the Canadians was not regarded by them as a good-will offering. It was made absolutely without consideration, and like a good many things that are given for nothing, it was viewed with suspicion. More than that, it was resented, and during the campaign Canadian papers were not slow or backward in referring to this fact. Even had there been the slightest expectation that by this offer, which was founded on the selfish demand of the United States penny paper publishers, the restrictions in Ontario or Quebec would be repealed or modified, that expectation will not be realized, and if it is possible they will be tightened. The Canadian people evidently sized up the game rightly. They were given a chance to do so and to express their opinions as to it. The people of the United States have not had that chance. They may have it later.



### PULP MANUFACTURE IN BRITISH COLUMBIA.

(Special Article.)

The Province of British Columbia, although it contains an abundance of water power and of timber suitable for the manufacture of pulp, has not yet taken its proper place in the manufacture of pulp and paper in Canada. Although the manufacture of pulp in British Columbia has not yet consumed two thousand cords of wood per year, there



are, at present, constructed or under construction, four pulp mills. The largest of these mills is that at Powell River, about 90 miles north of Vancouver, recently described in these columns. This mill is owned by the Powell River Paper Company, a close corporation consisting of the members of the Brooks, Scanlon, O'Brien Lumber business. This company was until recently known as the Canadian Industrial Company. The mill has now started to work. There is on the Powell River large water power. On the river, which extends back some 60 miles from the coast through the mountains, and around Powell Lake, which is a lake about 30 miles long and a mile to five miles wide near the mouth of the river, there is a large quantity of Douglas fir, Western hemlock and Western white fir (*Abies amabilis*). In addition to the timber on the Powell River drainage this pulp company will be able to secure large quantities of pulp-wood along the sheltered inland waterways, and on Vancouver Island. There is no large Sitka spruce near the mill of the Powell River Lumber Company, but within a radius of one hundred miles to the north a fairly large quantity of Sitka spruce may be secured. This spruce is very clear, long fibred and produces a pulp superior to the eastern white spruce. Another balsam (*Abies grandis*) occurs on Vancouver Island in small quantities. This wood possesses a fibre about as long as that of the eastern white spruce. It yields well, bleaches readily and is suitable for newsprint, tissue or strong wrapping paper.

What will be one of the largest pulp mills in British Columbia is that of the Oriental Pulp and Paper Company with headquarters at Vancouver and mills at Bella Coola, B.C., 300 miles north of Vancouver on the coast. This company was formerly known as the Bella Coola Development Company, but is now owned by a company in which Lester W. David, a prominent Seattle lum-

berman, is heavily interested. The mill is now under construction, and will be in operation in a few months. There is abundant water power. The timber used will be chiefly Sitka spruce. The capacity of this mill will be from 100 to 250 tons of dry pulp per day.

A mill which is now in operation is that at Ocean Falls, on the north coast of British Columbia, owned by the Canadian Pacific Sulphite Pulp Company. This company has absorbed the Oriental Pulp and Paper Company, during the past year or two. This mill is making experiments in the manufacture of pulp by soda and sulphite processes. They expect to start manufacturing on a large scale very shortly. They will probably ship their pulp to the Orient.

The oldest pulp mill in British Columbia is that at Port Mellon. This mill has had a varied career. It is now owned by the British Canadian Woodpulp and Paper Company, which has absorbed companies formerly known as the Western Canada Woodpulp and Paper Company, and the Quatsino Pulp and Paper Company.

The Western Canada Woodpulp and Paper Company owned the pulp mill at Port Mellon, on the Quatsino Sound, on the mainland of the British Columbia coast, but unfortunately were unable to secure any timber suitable for pulp manufacture. The Quatsino Pulp Company owned pulp leases on Quatsino Sound, on the west coast of Vancouver Island, but had no mill. These two companies amalgamated and were known as the British-Canadian Woodpulp and Paper Company. The mill is now out of date, and it was found impossible to manufacture pulp profitably. The chief owners of the British-Canadian Woodpulp and Paper Company, Messrs. Paterson, of the Paterson Timber Company, Joe Martin and Harvie, sold their holdings to Lester David, of Seattle. Mr. David is now trying to sell the stock in England.—“M.”

**RAG AND PAPER STOCK MARKETS.**

(Continued from Page 356).

We quote:—

News print, rolled .....	2½c.
News print, sheets .....	2¾c.
Book papers—Carload lots No. 3 .....	4c.
Book papers—Broken lots No. 3 .....	4¼ to 4½c.
Carload lots No. 2 .....	4½c.
Broken lots No. 2 .....	5¼ to 5½c.
Carload lots No. 1 .....	5 to 5½c.
Broken lots No. 1 .....	6 to 6½c.

**Wrappings—**

Manila B. ....	2½ to 2¾c.
Fibre .....	3c.
No. 2 Manila .....	2¼ to 3c.
No. 1 Manila .....	3¼c.
Kraft .....	4½ to 4¾c.

**Pulp—**

Ground wood (at mill)...	\$22 to \$23
Sulphite (bleached) .....	\$53

**Waste Papers—**

Per 100 lb.

No. 1 Hard White Shavings .....	\$1.90 to \$2.00
No. 2 Hard White Shavings .....	\$1.90 to \$2.00
White Envelope Cuttings .....	\$1.90 to \$2.00
No. 1 Soft White Shavings .....	\$1.70 to \$1.75
No. 2 Soft White Shavings .....	\$1.50
No. 3 Soft White Shavings .....	\$1.25
White Blanks .....	\$1.25
Mixed Shavings ....	50 to 55c.
Heavy Ledger .....	\$1.50 to \$1.60
Ordinary Ledger ....	\$1.25 to \$1.35
No. 1 Flat Books ....	95c. to \$1.00
No. 1 Book Stock....	85 to 90c.
No. 2 Book Stock ....	60 to 65c.
No. 1 Manila Envelope Cuttings .....	\$1.25
No. 1 Print Manilas .....	80c.
Railway Manilas .....	75c.
Folded News Overissues..	60 to 65c.
Folded News .....	55 to 60c.
Crushed News .....	
No. 1 Mixed Papers....	47½ to 50c.

**Rags (New and Old)—**

Per 100 lb.

1st Old White Cottons .....	\$2.25
2nd Old White Cottons .....	
Thirds and Blues ....	\$1.50 to \$1.60

**Roofing Stock—**

Per 100 lb.

Flock Satinets .....	92 to 92½c.
Ordinary .....	75 to 80c.
Tailor Sweepings .....	65 to 67½c.

Per lb.

No. 1 White Sheet Cuttings	5 to 5½c.
No. 2 White Sheet Cuttings .....	
Fancy Sheet Cuttings ...	4 to 4½c.
New Blue Prints .....	
New Blue Overalls .....	3¾ to 4c.

Per 100 lb.

New Black Overalls....	\$1.90 to \$2.00
New Black Linings ..	\$1.90 to \$2.00
New Unbleached Cottons .....	
Bleached and Unbleached Shoe Clips .....	

Per lb.

New Light Flannelettes..	4½ to 4¾c.
New Light Sheet Cuttings	4¼ to 4¾c.
Light and Dark Cords...	

**RAG AND PAPER STOCK MARKET.**

Montreal, October 5th, 1911.

There has been some uncertainty in the market for rags and paper stock since a month ago. It is difficult to say whether the elections on the 21st September and the defeat of Reciprocity had any effect or not. Of course, it removed an element of very considerable uncertainty and consequently the entire trade is well pleased that the elections are over. Otherwise, the rag and paper stock market was not greatly concerned, although manufacturers of certain lines of paper would probably have been considerably affected by competition, and it is just possible that this would have ended in them cutting into other lines of manufacture in which rags are used and thereby causing disturbance.

(Continued on Page 70).

### SILK FROM WOOD PULP.

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In the manufacture of artificial silk, wood pulp from Norway is utilized, being shipped to the United States in bales. This pulp is cut into thin sheets, each individual sheet is carefully weighed, and a certain quantity placed in a metal tank for chemical treatment.

The various chemical solutions used are mixed in huge iron tanks from which they are pumped under ground through a series of lead pipes to the departments requiring the various compounds. This pulp, having been macerated and digested is submitted to still further chemical action under certain fixed temperatures which are not allowed to vary even one-half a degree.

When it is ready for final transformation into silk the solution closely resembles molasses in color and consistency. At this stage it is pumped from the tank to the spinning frames. Here specially constructed pumps are attached to each spindle, which carefully measure off the required quantity of the solution.

This is forced through tubes with an outlet containing just as many perforations as there are to be filaments in the thread. Through these it is passed to a tank running the length of the frame and containing a chemical mixture which fixes the solution instantaneously into a thread.

This strand is carried over a wheel down through a tube to a rapidly revolving spindle; the rate of speed is about 5,000 revolutions a minute. From this the strands are afterwards unwound on reels into skeins. The air in the spinning room is completely changed every three minutes, being pumped off through hoods placed over each of the spinning frames. This is done to remove any possible fumes and to provide thorough ventilation for the operatives.

One of the interesting features in connection with the entire operation is the fact that the yarn is handled as little as possible. The specially constructed

stoves and bleaching arrangements are ideal, and when the skeins are finally carried to the large drying room on the fifth floor one marvels at the change which has so rapidly taken place. From here they are taken to the sorting room, where each individual skein is carefully examined by skilled operators.



### TESTING BLEACH LIQUORS.

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Some interesting results have been obtained by R. E. Bradley, of Winchester, Mass., in connection with testing bleaching solutions. The method generally adopted by paper-mill chemists for estimating the available chlorine in bleaching solutions consists in titrating a known volume of the bleach with standard arsenious acid solution and determining the end point by removing a drop to iodostarch paper or to a drop of potassium iodide and starch on a porcelain plate. This method works very well with solutions of chloride of lime, but much trouble has been experienced in titrating the available chlorine in bleach made in the wet way, viz., by passing chlorine gas into an excess of milk of lime. A little consideration may point to the apparent reason. Chloride of lime is made by saturating slaked lime with chlorine gas. Under these conditions the compound formed would have the composition  $\text{CaClOCl}$ , and there would be no free alkali from the calcium hydroxide. Bleach liquors, on the other hand, made by passing chlorine gas into milk of lime, contain considerable quantities of free hydroxide in the finished product, because an excess of milk of lime is always present. When bleach made in the latter way is titrated, a considerable amount of  $\text{OH}$  ions is introduced into the reaction.

It is well known that in an iodometric determination nothing but the bicarbonate may be present; all other alkaline carbonates reacting alkaline and absorbing iodine more or less rapidly, accord-

ing to conditions. This means that any method which uses iodine to color starch as the end point will be inaccurate if hydroxyl ions are present. That hydroxyl ions are present in bleach made in the wet way is shown theoretically, and may be proved analytically, whereas it can be equally proved that hydroxyl ions are not present in bleach made from chloride of lime.

It has been shown that it is incorrect to suppose that sodium bicarbonate has no action upon iodine. It was shown that when using one to two grammes of bicarbonate an error of 1.5 to 4.5cc, or 0.1 normal iodine was introduced, even when the bicarbonate used is exceptionally pure and proved to be free from carbonate, sulphite, or thiosulphate.

The above researches go to show that except under the most exacting conditions the arsenious acid method for the determination of the available chlorine in the wet-process bleach liquors is not absolutely reliable. A more reliable method is the process proposed by Bunsen, where a definite volume of bleach is delivered into a large excess of potassium iodide; acetic acid is then added, and the iodine liberated is titrated by thiosulphate. Here, since the solution is made acid there can be no hydroxyl ions present, and this trouble is avoided. Care must, however, be taken not to use a strong acid, as this would attack the chlorates present more or less according to the time and temperature. This method gives the most accurate results that could be desired. The only objection to it lies in the cost of the potassium iodide.



The Victoria Paper & Twine Co. report that the Continental Bag & Paper Co.'s lines of bags, Governor, Premier and Colonial, are meeting with very successful business and are very much liked in the trade.

## BAD SMELLS IN SULPHATE PULP FACTORIES.

The evil odors arising from the manufacture of sulphate pulp are due to mercaptan ( $\text{CH}_3\text{HS}$ ), says Paper Maker. As it is impossible to prevent its formation it becomes necessary to free the waste gases from it before they are allowed to pass away into the atmosphere. John Landin, of the Keniskt Tekniska Byran, Stockholm, has taken out two Swedish patents dealing with this matter, numbered 28,743 and 30,382 respectively. The former protects the use of metals and metallic oxides from absorbing the mercaptan. Both copper and copper oxide have been found to answer well, the waste gases being passed over them at a high temperature. The sulphide of copper formed is easily and cheaply reduced, so that the metal can be used over and over again. The second patent refers to the action of nitrous fumes (nitrogen tri- and tetra-oxide) in destroying mercaptan. These gases are very effectual, even when largely diluted with air. Chlorine and ozone are not only dearer, but less efficient. The cost of destroying the mercaptan by means of nitrous fumes is easily calculated. We may reckon on an average of 13 milligrammes of the sulphur-alcohol per cubic metre of waste gas. In a large pulp factory, this will make about 4.5 kg. of mercaptan. The destruction of this will require the nitrous fumes from 8 kg. of sodium nitrate, costing, plus the sulphuric acid required (5 kg.), from 2/- to 2/6 per day. The excess of nitrous fumes should be absorbed by lime, and the nitrate of lime formed can replace some of the nitrate of sodium, whereby the cost of removing the mercaptan is still further reduced. The nitrous fumes also destroy less evilly smelling, but still highly disagreeable, impurities, such as sulphuretted hydrogen.



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THE

# PULP AND PAPER MAGAZINE OF CANADA

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Vol. 9—No. 11.

TORONTO, NOVEMBER, 1911

{ Canada, \$1. a Year.  
{ Single Copy, 10c.

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## Pulp and Paper Magazine

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A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

**Subscriptions:** Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage, \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required, four days earlier. Cuts should be sent by mail, not by express.

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**BIGGAR-WILSON, Ltd.**

**PUBLISHERS.**

Offices, **Confederation Life Building,**  
Toronto, Canada.

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### PECULIAR VIEW OF CONSER- VATION.

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Hon. J. S. Sherman, Vice-President of the United States, is reported to have spoken as follows in a recent speech at the opening of a new municipal hydro-electric power plant at Sturgis, Mich.:

"He is the best conservationist who utilizes the forces of the air and all the hidden forces of the earth for the advancement of mankind and turns these forces into comforts and conveniences and makes them supply necessities and in other ways lighten the burdens of this generation. I believe each new generation is equal to the task of discovering some new thing to take the place of any exhausted natural resources. I

am willing to give the coming generation credit for being as smart as we. I believe that they will find fuel. It may be that they will invent appliances to squeeze out of the air the thing that will light and heat the homes."

Now, while Mr. Sherman does not explicitly advise the present generation to be wasteful and to have no thought for the generations to come, that is what his remarks imply. Assuredly, any syndicate wishing to excuse itself for a contemplated snatching up of natural resources for its own enrichment might be expected to salve its conscience by the remembrance that such remarks had issued from the lips of next to the most authoritative man in the country. It may be, as he says, that the coming generation will be equal to the task of discovering some new thing to take the place of any exhausted natural resource. But then again, such a fact may be beyond its power, and not through any lack of smartness. At least, it is scarcely fair for us to take this for granted, without facts to build on. Moreover, there is nothing in the principle of true conservation to prevent present-day citizens from using from nature's stores of materials and resources. All it asks is that these shall be used rationally and not wasted. By proper methods it is quite possible to use resources and yet retain them. It

is not a case of "You can't eat your cake and have it, too."

In regard to the preservation of the forests, for instance, the first settlers found that their chief obstacle in the way of cultivation and making a living was in the superabundance of trees. Accordingly, their task was to hack them down and away. They little realized a time would come when trees would be a highly important need. Conservation simply means taking care of them.



#### MARKET CONDITIONS.

A correspondent who keeps in close touch with market conditions, expresses the opinion that the United States mills have done splendidly in meeting the wants of the newspaper press, considering that owing to the unusually low water of the past five months, heavy imports have had to be made of ground wood pulp at an average price of \$24 a ton. What this means as a handicap upon profits may be realized when it is known that the September imports of chemical pulp to the United States were 25,000 tons, or at the rate of 300,000 tons a year, while the imports of ground wood pulp were 28,190 tons for the same month, of which 26,000 tons came from Canada. If we add to this the 6,000 tons a month of news print brought into the States from this country, it will be seen how important the mutual relations of Canada and the

United States are becoming in this field of industry.

The water situation is at the present time, favorable in both countries, but a freeze-up in the northern latitudes of the continent has now set in and this will soon reduce the flow of streams again. In view of these general conditions our correspondent, noting the renewed attack on the International Paper Company, by the chairman of the American Newspaper Publishers' Association, thinks that while more presumptuous, it would be at least more reasonable to accuse the powers of Heaven of being in a conspiracy to hold up the newspapers on the price of news print under present conditions.

Our correspondent, pointing to the impending famine of pulp in Scandinavia, takes the rational view, however, that in obtaining free pulpwood, along with free pulp and paper from Canada, the interests of both United States manufacturers and United States consumers of paper, are better served than would be the case if the duty on pulp and paper were reimposed at the risk of having the free supply of pulpwood also cut off. Seeing that Canada imports from the United States goods to the amount of \$300,000,000 a year, of which 65 per cent. are manufactures, while United States imports from Canada, are only half that amount, and largely raw materials, and that the average United States duties against Canada are still twice as high as those of Canada against the United States, there is still a balance in equity due to Canada. The majority of fair-minded citizens of the United States will agree with our correspondent.

### A FORESTRY POLICY.

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The change of government at Ottawa renders the time opportune for a consideration of Canada's forestry policy. In this country and the United States a main difficulty has been caused through the non-uniformity of laws affecting forest preservation in the various states and provinces. R. G. Lewis, of the Faculty of Forestry, Toronto University, in an article on this subject, observes that the principles underlying the forest policy of a country should be of universal application for that country.

In Canada the older provinces control their own timber lands, and each adopts a method of its own. Each has its own way of measuring timber. There are in existence a dozen or more log rules in Canada. Confusion is always present under such conditions. One province makes certain rules for the protection of timber lands from fire and its neighbor makes entirely different regulations, although the boundary between their forests is a purely political one.

In the new provinces of Alberta and Saskatchewan, in Manitoba and in the twenty-mile-wide railway belt in British Columbia, the timber lands are controlled by the Dominion Government. The department of the interior has a forestry branch that has accomplished wonders in outlining a plan for the control of these lands.

With the exception of the railway belt there is very little timber on these lands. But there is a large area of potential forest land: land unfit for agriculture, which will support and has supported tree growth in the past. This land should be withdrawn from settlement. The tim-

ber existing should be protected from fire and injudicious lumbering. Mr. Lewis thinks it should be controlled by one body, and so managed that it will produce a crop of timber large enough to supply the local demand for all time. This can only be done by one administration to bring about satisfactory results. If the control is vested in the separate provincial governments they will lose the benefit of the work already done by the federal government, and the country at large will lose the source of future supply. What is needed is a mass of data gathered from all available sources and then digested and utilized for the foundation of a policy for the whole country.

The outstanding fact throughout a large section of Western Canada is the scarcity of timber. The Forestry Department has already done good work in withdrawing from settlement certain sections which are unsuited to agricultural settlement and yet would be adapted for forestation. Taken in the aggregate there is probably enough timber in the western provinces to supply the local rural demand, and by the time the country becomes settled if the waste and cut-over areas have been properly attended to and replanted, there should be sufficient to supply the timber needs of the country for all time. All this will require careful planning, but with an energetic forestry policy, such as has already been inaugurated at Ottawa, we do not fear but that the requirements will be met. We do not hesitate to bring to the attention of the new Dominion Government the necessity for encouraging in every way possible the work which has been so well started.

## TARIFF OUTLOOK ON AMERICAN PULP AND PAPER.

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In the advertising pages of this issue the American Newspaper Publishers' Association makes a statement regarding the tariff outlook on news print paper. Mr. Norris, as chairman of the association's committee on paper, states that the American Paper and Pulp Association is trying to discourage any extension in the production of news print in Canada, and that the paper manufacturers are trying systematically to starve the market and to curtail the output. Mr. Norris further says his committee believes that the duties on pulp and paper from favored nations like Germany, Sweden and Norway, will soon be abolished, and adds that United States newspapers have been advised to protect Canadian paper mills selling in the United States from loss, should duties be put on Canadian newsprint.

There has been no concealment by the United States paper and pulp makers of their opposition to free imports from Canada, and those manufacturers adversely affected by such free imports are trying to have the free clause of the Act of 1911 repealed; but the assertion that they are trying to starve the home market is not borne out by any evidence before the public, and the actual trade conditions are against such a theory. If, as Mr. Norris says, the United States paper makers are trying to starve the home market by curtailing production, how is such a policy likely to discourage new production in Canada? On the contrary we know that the vacuum left by every United States mill which would close down would be immediately filled

by the output of some Canadian mill, so that no such conclusion can be drawn from the premises the committee lays down.

As to the favored nations, Canada is affected by those international agreements, but the United States is not, and there is no Canadian reciprocity agreement in existence. We do not see, therefore, how the favored nations agreement will affect the situation as between Canada and the United States. United States commercial treaties have heretofore been negotiated on the principle of demanding from each nation specific concession for specific concession; and it seems hardly likely that the United States will admit free pulp and paper from other countries without demanding some equivalent, either in these products or in some other direction. These bargains will require time to negotiate, and every month that elapses will make it more difficult for United States interests to go back to the status of 1910. Our own opinion is that if the duties are put on against Canada at all, they will be of a lighter and more reasonable kind, and such as will not deprive Canadian mills of their essential advantage in the production of pulp and news print.

As to the abrogation of free pulp and paper from Canada and its effect on prices here, we may mention that the leading Canadian manufacturers already have a clause in their contract with United States importers by which the purchaser agrees to pay any duty that may be imposed.

When prices of news print began to advance in the States many of the newspaper men charged the paper manufacturers with robbery under the shelter of the tariff, and formed the theory that



with free pulp and paper from Canada prices would go down. Well, they have had for the last three or four months the advantage of these free imports, but prices have gone up rather than down, and the theory does not fit the facts. The truth is that the effect of a tariff in creating or maintaining an industry is limited according to the possession of the raw materials on which that industry is founded, and if the United States put on a tariff of 500 per cent., it would not countervail the natural advantages which Canada has in this field. If the United States newspapers would cease their fratricidal war with the other industries of their country and recognize the profound changes in the economic life of their country, adjusting themselves to their new conditions, they would add to their renown for wisdom and fair play. This, after all, is the basis of that influence which forms the greatest asset of a newspaper man's vocation.



#### **PRESIDENT TAFT AND THE PAPER MANUFACTURERS.**

It was courageous of President Taft to beard the lion in his den by visiting Appleton, Wis., as he did towards the end of last month, and to make a speech in that important centre of American paper making. For the manufacturers knew and President Taft must have known that they knew that he had done more to jeopardize their industry and means of livelihood than any other one thing in years. His reply to the series of questions addressed to him on behalf of the paper manufacturers was interesting but not convincing. The follow-

ing is condensed from the President's remarks on this occasion:

"I am asked here why I did not look better after the paper industry. I thought I had. What we are anxious to do is to save the resources of this country, and what I had aimed to do was to have removed the restrictions Canada is placing upon raw wood shipment into this country, but instead of these restrictions being removed, they are becoming greater. We have no free trade between Canada and the United States. When our raw material supply is exhausted, Canada, no doubt, will contrive to command the sale and use of hers. Paper that is made out of untaxed wood may come to this country free of duty. Since the time this provision was made, paper has been going up instead of down, which does not seem to indicate that disaster faces the American paper industry. My investigation, and the report of the tariff board, proved to me that the difference in the cost of production here and in Canada was represented by the difference in the cost of the raw material. The only paper that can come into this country from Canada free, under this law, is that which is manufactured from wood grown on land where no restrictions are placed. The fact is that practically all the Canadian territory restricts the export of wood, and, consequently, most all Canadian paper coming into this country pays the highest duty"

Of course, the meaning of the American Government's policy was to conserve the resources of the United States at the expense of Canada's, which was precisely one important reason for defeating reciprocity. We are glad that

the President recognizes that instead of Canada's restrictions being removed they are becoming greater. As to the rise of paper prices since the inauguration of the new policy, surely Mr. Taft must be better advised than to have the idea that one is the result of the other. He should know that other causes have brought this about having no connection with free pulp or paper from Canada. Natural increase of consumption at this season of the year, low water and consequently enhanced prices for ground wood, are much better reasons. However, the President seems to be content with things as they are, so we suppose there is not much more to be said—for the present at any rate.



#### FREE ENTRY FOR PULP.

As has been expected for some time past Norway and Sweden, through their diplomatic representatives at Washington, have requested the United States to grant them, under the favored-nations clause of their treaties, the same privileges given to Canada by section two of the reciprocity agreement, by which wood pulp and print paper are admitted free of duty into the United States.

Several other countries, including Germany, it is believed, have asked the same privileges.

These requests place before the State Department the question of whether wood pulp and print paper can be admitted free from other countries than Canada, under the favored-nation clauses in the existing treaties between the United States and those countries. Officials of the State Department are in consultation on the subject with officials

of the Customs service of the Treasury Department, and a final decision will not be made until these conferences have been concluded.



As will be seen from a paragraph in another column in this issue, another proposition is on foot to establish a factory for the manufacture of paper out of peat. We do not know what knowledge is possessed by the people concerned, nor whether they have discovered some new process by which the conversion can be rendered commercially possible. But we believe it to be an undisputed fact that in no case up to the present time has such a proposition been commercially profitable. It has been asserted on good authority that not more than 5 per cent. of the fibres in an average sample of peat are strong enough to form an economical component part of paper. The degree, therefore, in which peat can compete with ground wood or other materials, as a source of paper supply, becomes very questionable.



The department of Chemical Engineering of McGill University is adding to their industrial equipment apparatus for work in paper. Two experimental digesters are being supplemented by a Marx & Co. lava stone beater roll, supplied by J. A. DeCew, of Montreal. The roll is of experimental dimensions—7½-inch face, 10-inch diameter, mounted on a 30-inch shaft. It is being fitted with adjustable bearings to run in a cement trough 4½ ft. long, and will be driven by a 3 horse-power motor. Investigations covering some months will be conducted by A. G. McIntyre, B.A., a fourth year student in Chemical Engineering, who has had practical paper mill experience. Special attention is to be paid to the process of beating and sizing by different methods. It is expected that the benefits of the lava roll will facilitate such investigations greatly.

## Trade and Manufacturers' Notes

### IMPROVED PULP MACHINERY.

A recently issued Canadian patent discloses one of the most notable improvements of recent years in pulp machinery; although the invention itself is not limited to the pulp mill for its field of service.

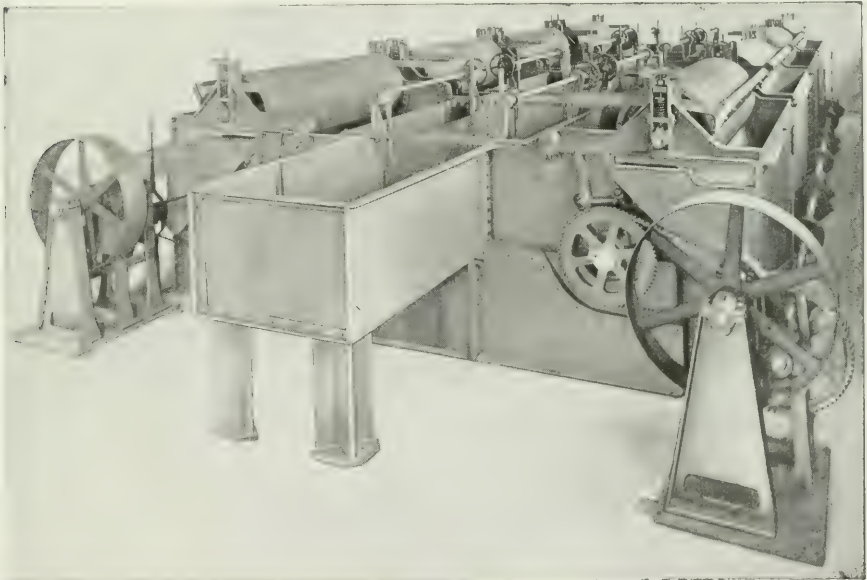
The improvement consists in a self-contained machine so designed that it is immediately ready for service as a single machine, or, when desired, for use as a unit in a battery of identical machines. This improvement particularly applies to

would ordinarily be the case with isolated machines.

As the invention is primarily intended for thickening pulp, it may most conveniently be described as installed for such service, and known as the "Pneumatic Pulp Thickener-Battery Type."

As a single machine, the Pneumatic Pulp Thickener has been in wide service among the pulp mills of the Dominion for several years.

In that form it consists of a specially constructed cylinder mold rotating partly submerged in a vat of sulphite or



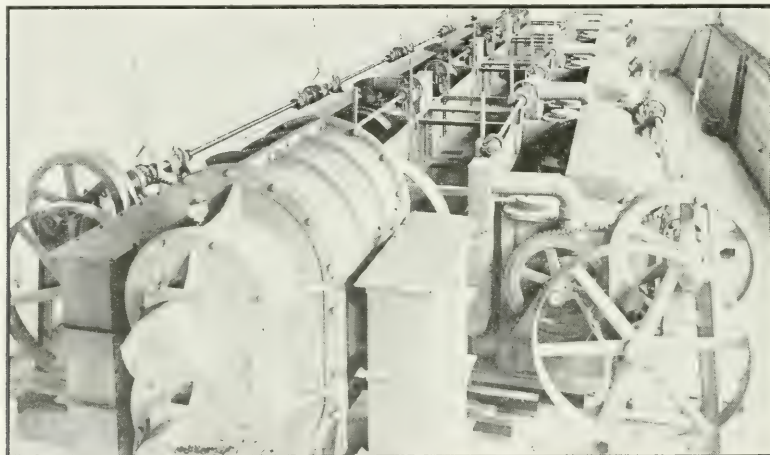
Deckers or Slushers, as well as the Pneumatic Save-All or Thickener.

When used as a single machine, the device is to a very large degree self-regulating. When installed in multiple, the individual units are not only self-regulating, but each acts as an automatic relief or check upon the preceding unit. The system is therefore wonderfully elastic in its operation, taking care of the widest variations of load, with far greater efficiency and uniformity than

ground wood, and supplied by a rotary pump with positive and negative air pressures—"suction" and "blow" pipes. The liquid is drawn through the mold by suction, depositing all fibres upon the exterior surface. The stock is thence removed, at the right point, continuously by air pressure. Both "suction" and "blow" arise from within the cylinder through a suitable arrangement of piping.

It has been found in practice that this pneumatic action provides a far more uniform action, and occasions far less loss of stock, than the older method of couching the thickened stock from a common cylinder mold. The pneumatic action furthermore gives astonishingly large capacity to a small machine so that a thick, uniform blanket of compacted pulp is delivered without the necessity of any personal attention to the machine.

The new "battery type" utilizes the principle of this machine for its individual "units"; but the manner in which these units are combined into battery form furnishes in itself a vast improvement in pulp mill operation.



To illustrate the result accomplished, consider one such machine installed and working at full load and maximum efficiency. Now any added quantity of inflow, above this point, would ordinarily require to be switched off by an attendant into a separate machine, and that machine disconnected again as the flow diminished. In the battery type, however, a single conduit supplies the inflowing stock to the first machine through a gate which automatically protects it from an overload and deflects the excess to the second machine. This second machine can receive only so much stock as the first one cannot take. Its intake is gauged exactly to that point.

Hence the first machine is continuously held at maximum efficiency, and the excess taken care of by the second machine.

The same thing occurs where there are two machines, as here supposed, or half a dozen. Each in turn receives the excess flow, and permits all the excess (over what it cannot handle) to flow by to the next one.

The result is that the thickened stock, however greatly it may vary in amount, cannot vary in density. It is always the same, to a far greater degree of uniformity than has ever been practicable before.

Hence the formula, which the mill may be working on at the time, can be fol-

lowed absolutely without guesswork, and without the necessity of weighings or calculation.

The invention realizes a very pretty conception; and in practice its operation is surprisingly effective. The mechanical working-out of the idea has produced a very compact, simple machine; self-contained, with all pipes and sluices built in integrally with the machine itself, with all gates, power transmitting and controlling apparatus and overflows forming parts of the main structure—not built on in a manner to take up space or shut off a clear view of the mill and its equipment.



Another important feature of the invention is that, while we have spoken of the machines as installed in series, as a matter of fact, any one of the entire row may be set to act as number 1, and the others connected or disconnected without interfering with one another.

In fact, if any one or more units are to be shut down for inspection, the others may take up the work without interruption; and thus the entire battery may be washed up without stopping.

The usual method of installation is to add on extra machines as needed in a straight line; and when still further capacity is needed a second row is bolted on, "back to back," with the first. In this way, the sulphite thickeners for the largest mill are all brought into a compact group, with no overhead piping, or power shafting, or external attachment of any sort. The entire equipment can be inspected at a glance, the attendant walking down a central gangway and having every part of the machinery immediately in sight. Usually the rotary air pump used for supplying the pneumatic mechanism is located at the center of one end of the battery; and the mechanical power for turning the cylinders is put into the chain-connected driving shaft at whichever end is most convenient.

The separate units are built up by jigs and templates in such a manner that they need only be bolted together when installed, and will then be found accurately aligned for operating. When adding a new unit, the end plate of the conduit in the last installed unit is unbolted, and the new unit bolted on "ready to run."

While primarily intended for pulp thickening, these new batteries have been put into a number of mills for saving the waste stock from pulp and paper mills. The same efficiency that makes them so valuable as pulp thickeners makes them even more notable as sav-

The pneumatic action, without mechanical couching or doctoring of stock, has been found to trap and save a larger percentage of stock, in better condition, and at less cost of operation and supervision, than in any previous type of machine.

We are indebted to the Sherbrooke Machinery Co., Ltd., of Sherbrooke, Que., for the illustrations accompanying this article.



The Jeffrey Mfg. Co., Columbus, O., who also have an office at corner of Cote and Lagauchetiere Sts. Montreal, send us a copy of their latest catalogue on power and transmission. This seems to be one of the most complete and up-to-date power and transmission catalogues we have seen, that is to say, judging from the number of subjects listed and the large amount of valuable technical information contained in it. The matter lists the complete lines made by the company, giving the entire information in such a way that will make this book exceedingly valuable to the engineer in charge of an industrial plant, a mine, mill, or large factory where this class of machinery is used. Besides listing dimensions and sizes of every part in this line, the book contains descriptive matter on the horse powers of steel shafting, standard methods of key seating, sizes and dimensions of couplings, hangers, pillow blocks, counter shafts, belt tighteners, clutches and quills. A feature is made of the Jeffrey Improved Split Iron Pulley which may be readily clamped on the shaft without disturbing any other equipment, or may easily be removed from the shaft when necessary. A complete line of wood split pulleys and a very complete description and information on rope driving are shown. Another feature of this catalogue is the complete listing of the Jeffrey Gears, including spur, bevel, miter, angle reduction and angle miter. This method of arriving at the horse-

power is contained in no other catalogue, besides complete information about dimensions and speed. There are quite a number of details in the rear part of the book, including horsepower of belts, method of calculating bending and torsional moments for shafts, which are invaluable to the engineering fraternity.

\* \* \*

The American Hoist & Derrick Co., St. Paul, Minn., are sending out one of the handsomest catalogues we have ever seen. From cover to cover—and there are over 70 pages in between—it is full of beautiful photo-engravures of forest and logging scenes. The importance of the "American" Log-Loader, which is one of the leading appliances made by this company, is indicated in the estimate that, with its aid, three men can load logs as they lie in any position within a reasonable distance of track, as rapidly as twelve men and two loads can load logs from carefully prepared rollways.

\* \* \*

The Moore and White Co., Philadelphia, favor us with a copy of their latest catalogue. As is known to our readers, this firm make high grade pulp and paper making machines. A considerable part of the present catalogue is devoted to a description of Bellmer's Bleaching Process, aided by some good illustrations. "M. & W." Pulp Thickeners or worm washers, Eckenroth's Patent Log Splitters, also their standard wet machines, screens, agitators for horizontal and vertical stuff chests, also come in for attention.

\* \* \*

Dobler & Mudge, Baltimore, Md., are placing on the market the Eddy Paper Tester, a patented device for the information and protection of printers and paper consumers. With the aid of this instrument, accurate comparison may be made between various samples of paper, enabling the purchaser to select the best value for the price. This tester registers numerically the strength of

each sample examined. It is small and easily carried and sells for \$15 net.

\* \* \*

The Garden City Paper Mills Co., Ltd., who make toilet and tissue papers at St. Catharines, Ont., have issued a "Special Mardi Gras" reminiscence, which is described as "Better than Elbert Hubbard's Silence." It contains a fine sample of their product.



#### PULP AND PAPER MATTERS IN MONTREAL.

(Special to Pulp and Paper Magazine.)

Montreal, Nov. 11, 1911.

The lumber interests of Montreal were greatly shocked on the first day of this month upon learning of the sudden death, from drowning, of Mr. George A. Scott, secretary-treasurer of the Argenteuil Lumber Company and president of the Gambo Lumber Company of Newfoundland. Mr. Scott, who was an enthusiastic hunter and a lover of the woods, was hunting on Thanksgiving Day with half a dozen friends in the vicinity of the Argenteuil Lumber Company's mills, at Morin Flats, Que. A deer had evidently been driven into the water in the vicinity of where Mr. Scott was stationed. The party heard three shots, and Mr. Scott was seen to be rapidly rowing across the lake. Failing to appear thereafter, search was instituted with the result that the boat was found floating bottom upwards near the shore. The boat was of the canvas, collapsible type; with a good broad beam, and was not easily upset. It is supposed that some sort of accident took place, and Mr. Scott was thrown upon the side of the boat. The water was exceedingly cold and the occupant, possibly after an exhausting row, was unable to put forth any effort to reach the shore. It is doubtful if he could swim. His body was found the next morning. Mrs.

Scott and family of three children awaited Mr. Scott's return at Morin Flats, where all were spending the Thanksgiving holiday.

Deceased was born at Cambria, P.Q., and was 38 years of age. When young he came to Montreal and was employed for a considerable time in the secretarial offices of the Montreal Board of Trade. Later he associated himself with the Laurentian Lumber Company, and after some years, along with several of his associates, formed the Argenteuil Lumber Company, of which the Hon. G. H. Perley, lately whip of the Conservative party, was president. Three years ago he took up the work of forming the Gambo Lumber Company, which purchased timber and pulp-wood limits near Gambo, in the Bonavista Bay district of Newfoundland. Mills were here erected by the company and have been operating ever since. The headquarters of the company are in Montreal.

Mr. Scott had a very large number of friends throughout the lumber trade of Montreal and the Province of Quebec, his acquaintances extending also into pulp and paper circles. His death was sincerely regretted, as was attested by the large number of prominent business men who attended the funeral to the Mount Royal Cemetery on the 3rd inst. He was a member of St. James Methodist Church and a Grand Master of the Montreal district of the Canadian Order of Oddfellows.

#### **Wayagamack Pulp and Paper Company.**

A large party of Montrealers were given an opportunity to visit the plant of the Wayagamack Pulp and Paper Company, located on Baptist Island, at the confluence of the St. Maurice and St. Lawrence Rivers, recently. After inspecting the work that had been done on the island, and being made acquainted with the resources of the large limits which will supply the raw material to the mill, everyone concurred in saying that there is a great future in Canada for the pulp and paper industry.

A total of 4,072,000,000 feet is given as a conservative estimate of the timber contained in the limits of the new company.

Paper, used principally for wrapping purposes, is the article which the company will first devote its attention to.

There are over 600 men now employed in the building operations on Baptist Island, and before spring the directors of the company expect to be in a position to turn out from 75 to 100 tons of pulp and 50 tons of paper a day. When completed the full capacity of the mill will be 200 tons and 2,000 hands will be employed.

The tall chimney rises fully 250 feet over the level of the St. Lawrence and is a monument to the business initiative of Mr. J. N. Greenshields, K.C., president of the company; Mr. C. R. Whitehead, vice-president; Senator Mackay, Mr. Rodolphe Forget, M.P., and Mr. D. H. Pennington, M.L.A., directors of the new company.

The C.P.R. will build a bridge across the St. Maurice and will run a spur track into the pulp mill yards and a deep water wharf will be erected within thirty feet of the main channel of the St. Lawrence, where ocean going vessels of the deepest draughts can come for cargo.

There has been a great deal of talk of late concerning the possibility of an amalgamation between the Wayagamack and the Eastern Canada Pulp and Paper Companies, and now it is stated that an effort may be made to include also the Price Bros. Company. One merger genius even works in the Spanish River Pulp and Paper Mills. The latter is so far distant from the former three that it becomes difficult to see what advantage there would be in an amalgamation with it. The limits of the other three concerns are more or less in the same locality, so that it would not be surprising if eventually the concerns were brought together. However, even the merger between the Wayagamack and the Eastern Canada, which un-



doubtedly has been under consideration, is denied, so that the larger programme seems exceedingly unlikely. It is claimed that controlling interests in the Wayagamack are not desirous of amalgamating with any other concern. This, however, might possibly even be said of the other companies and, as a matter of fact, is said in pretty nearly all cases where mergers are under discussion.

In any case, pulp and paper stocks have undoubtedly been on the boom in Montreal for some time past. The movement began with the manifest prosperity in the Laurentide Paper Company, it being decided to form a new company to take over the property of the old, and to issue two shares of new stock for every share held in the company. This stock bonus of 100 per cent. will undoubtedly draw liberal dividends also, and the new stock already has advanced to nearly par and a half. This drew attention to other pulp and paper stocks. Then followed special excursions to the Spanish River plant, the Wayagamack plant as above described, and to Price Bros. plant.

There has been an enormous turnover of Wayagamack bonds during the past two weeks, the buying being on account of large financial interests. It is understood that the company had, a few months ago, a very attractive offer for its property, which was very much in excess of the amount of bonds outstanding, but the offer was refused. This is mentioned merely to indicate that the present purchasers of the bonds have some assurance that the price of 76 is below the true value and that the heavy interest yield at that price quite justifies the purchase. About \$50,000 of the bonds were bought at 76 on one morning alone. There was then a set-back in the price of the common stock which had sold up to 48. Later it sold up to 45½ on realizing sales.

(Continued on Page 412.)

## MATERIALS FOR PAPER MAKING.

At a stage in applied science when it seems as though it were possible, through chemistry, to make any particular thing out of any one of dozens of kinds of raw material, it is a striking fact that for paper, one of the commonest and most abundant things, there are comparatively few raw materials that can be economically made use of. In speaking of this fact, Arthur D. Little, of Boston, Official Chemist of the American Paper and Pulp Association, says:

Although paper of some sort may be made of almost any vegetable fibre, the number of fibrous raw materials economically available for paper making is, in view of the almost infinite variety of vegetation, surprisingly limited. Cotton, flax, jute, straw, esparto, hemp and a few woods almost exhaust the list. Nevertheless, not only does each of these fibres impart definite and often distinctive characteristics to the sheet into the composition of which it enters, but the range of variation is further enormously increased by admixture of several fibres, and the chemical and mechanical treatment which they have received by way of preparation. The best stock for any paper is easily spoiled by careless or improper methods. The stock that under skilful treatment normally yields a strong, tough, permanent sheet, may by improper beating or careless bleaching give only a weak, brittle and short-lived paper. The degree to which the fibre substance is hydrated, or soaks up water, during beating has a profound effect upon the properties of the paper, as also the manner in which the fibres themselves have been subdivided. All this, of course, to the papermaker himself is the mere A B C of his art, but it is commonly unknown to the paper consumer or ignored by him in his estimates of quality. Quality cannot be predicted upon stock alone.

(Continued next month.)



**PULP AND PAPER NOTES IN WEST  
CENTRAL CANADA.**

(Special Article.)

There are as yet no pulp mills projected or in operation between Fort Frances, Ont., and Revelstoke, B.C., but the time is doubtless coming when they will be constructed.

The reasons there has been no development so far is that, the waterways run north from the centres of population, making it difficult to get the wood to the mills or the product to market. The market has not been great, and two of the chief woods, jack pine and aspen, have been considered poor pulp woods. The construction of railways opening up the northern forests, along the Albany, Nelson, Brazeau, Athabaska and Peace Rivers will make a great difference in the accessibility of the timber on Dominion Lands during the next decade. The settlement of the west will make it advisable that pulp and paper mills be established near the large market.

Practically all the accessible spruce on Dominion Lands are under lease to operators who are cutting or intend to cut for sawmill purposes. Some of the leases represent as good pulp-wood propositions as could be found in Quebec. There are railroad facilities and an abundance of water. The labor would need to come with the industry. Other territories, covered with spruce, aspen, jack pine and tamarack, have not been leased by lumber companies, because the timber is too small for lumber production. This timber occurs in dense stands over large areas, plentifully supplied with waterways and averages 6-12 inches in diameter.

The spruce is the same spruce as found in Eastern Canada, and does not differ in any characteristics. Both white and black spruce are found, the white spruce being more plentiful and growing occasionally somewhat larger than in Eastern Canada, reaching a height of 120 feet or more and a diameter of 50 inches.

Jack pine is not thought to be suitable for pulp in Eastern Canada. The United States Forest Service has in its laboratory at Madison, Wisconsin, a complete outfit of small-sized pulp and paper machines in charge of experienced paper makers. At Warsaw, Wisconsin, is a completely equipped pulp and paper mill furnished with the ordinary commercial machinery, where experiments are carried on by the United States Forest Service in testing different species for the manufacture of pulp and paper by both the mechanical and chemical processes. It has been found after much experimenting that jack pine may with but slight changes in the processes, be manufactured into good mechanical or chemical pulp with the ordinary commercial machinery. This discovery will eventually increase the value of the large areas of jack pine in Western Canada, and assist in the foundation of a pulp and paper industry.

Tamarack occurs scatteringly throughout the areas of timber suitable for the manufacture of pulp. It has been demonstrated at Warsaw that both the dead and green tamarack may be manufactured into chemical pulp.

One of the most important trees suited for the manufacture of pulp in Western Canada is the aspen poplar. This tree covers large areas in dense stands, in which the trees average about 75 feet in height, 10 inches in diameter, and will run 20 cords per acre over large areas. In some instances poplar has been cut running 50 cords per acre, all clear timber. This timber is now loaded on the car for less than \$3. per cord, stumpage included. In the district surrounding Dauphin, Man., a district in which there is water and labor suitable for pulp manufacture, there are shipped about 30,000 cords of poplar wood per year. There are the poplar belt of Northern Manitoba, about 3,000,000 acres of Forest Reserves, an area which will probably be increased, upon which timber will always be produced. An average acre of this reserved land will produce

over one cord of wood per year, so that it may be figured that there will always be a large supply of suitable pulp timber. Poplar has been up to the present used only for ground wood for book paper and for soda pulp. Experiments conducted by the United States Forest Service have shown that poplar will produce a good grade of sulphite pulp. It is easily cooked and bleached. The fibre is short and it must be mixed with spruce to make strong paper.

So far as can be learned there are at present no regulations providing for the lease of Dominion Lands for the cutting of pulp-wood. The stumpage paid for poplar cord-wood cut from Dominion Lands is 25c. per cord.

It was reported this summer that an examination was being made by the Forestry Branch of the pulp-wood resources of the Albany River drainage in Keewatin, in the neighborhood of Gull Rock Lake, Trout Lake and Lac Seul, north of the Hudson's Bay Post of Mattawa. This examination is being made because of a growing demand for pulp-wood in the region. If it is found that there is sufficient pulp-wood to support a mill there will probably be regulations provided to allow the development of the territory.

The Minnesota and Ontario Power Company, with plants located at Fort Frances, Ont., and International Falls, Minn., have a daily capacity of 225 tons of paper, 120 tons of sulphite pulp, and 200 tons of ground wood pulp. This company has not yet completed plans for manufacturing in Ontario.

Anyone who doubts the effect of deforestation on the regularity of stream flow should visit some of the small pulp mills in Quebec, where there have been pulp mills in operation for thirty or forty years. On the Nicolet River there are two old pulp mills, one the Nicolet Falls Pulp and Lumber Company, established for over thirty years as a private property, recently organized as a stock company, and the other at Kingsey Falls, the

Dominion Paper Company. The managers of each of these mills state that during the past few years the continued deforestation of the headwaters of the Nicolet River, by cutting and burning has made itself felt in spring floods and summer drought to such an extent that there is now not enough water in the summer to run the same machines for which there was regularly an abundance of water twenty years ago.

The mill at Nicolet Falls manufactures nothing but mechanical pulp. About 1,200 cords of wood are used in seasons of low water, and about 2,000 cords in seasons when the water supply is satisfactory. A planing mill and saw mill is operated in conjunction with the pulp mill. This company owns limits and buys wood from private owners in the headwaters of the Nicolet River. About 80 per cent. of the wood used is spruce, the remainder is balsam. The hemlock and cedar cut when logging for pulp are manufactured into shingles and lumber. A portion of the pulp-wood cut by this company is rossed and shipped to the United States, and a portion is driven a few miles farther down the Nicolet River and sold to the pulp mill of the Dominion Paper Company at Kingsey Falls.

The Dominion Paper Company is one of the few concerns in Canada making Kraft paper. This company secures all its logs either from its timber limit on the Nicolet River or from private owners, and has been greatly hampered this past few years by low water. Both ground and sulphate pulp are manufactured, two grinders and two digesters being operated when the water is high enough.—“M.”



The National Paper Co., Valleyfield, Que., is reported to be making good progress on the construction and equipment of its new coated paper mill there. It is already taking orders for the product to be turned out.

## THE INVENTION OF MAKING PAPER FROM WOOD.

(Concluded from last issue.)

Applying this system to my friend's case, the question arose as above, and spontaneously with the question came the answer, like an inspiration, and turning to Mr. Hook, I remarked: "There's no need to waste this splendid material in making coarser paper; if you have too much fibre, why not pulp up something having no fibre, mix the two together, and so work it up?" "Oh!" said he, "that couldn't be done; we must have fibre, and if not, what is there we could pulp?"

I knew of nothing. And just then I allowed to escape me that information which, had I kept to myself, until secured by patent, would have brought me in a pile of fortune and fame as well. Turning to him with a look of amusement, knowing I possessed the solution of his problem, I informed him there were tons upon tons of material close at hand which was being thrown into the river to go down with the tide, that the proprietors of the neighboring saw mills would be glad to be relieved of their "sawdust," and that would give him a material for easy pulping and admixture, for, having no fibre, he could reduce his pampas pulp to any degree of strength he pleased. To this suggestion he just laughed outright, but, after an examination of his pampas cargo, I felt more strongly convinced than before that my theory was a sound one. Receiving his invitation to return to the office for a cheque covering previous business, I accompanied him there, when his foreman, a Mr. Freeland, coming up, Mr. Hook endeavored a joke at my expense, saying, "Why, Freeland, here's Mr. Field actually thinks he can teach us our business, and to help us out of our trouble suggests that we make paper from wood by pulping sawdust and mixing it off! Ha! ha! why,

sawdust wouldn't pulp, would it?" The foreman coincided with his employer, both heartily laughing at the idea, and the laugh also went the round of the office, several clerks feeling free to join in. In self-vindication I then explained our practice of wheat-blending, remarking the recourse of one manufacture suggested a similar treatment in another.

During my short argument I noticed a German clerk, seated in the corner of the office, quietly lift his head and listen, mouth and ears open, taking in the gist of the subject, while the others remained unconvinced. The Teuton here displayed his shrewdness in contrast to the Anglo-Saxon, and I afterwards learned he had sent the idea home to Germany, where it had taken hold of the minds of some manufacturers, who tested and proved my theory to be correct. Some months subsequent to this, when business had been resumed between us, Mr. Hook, on one occasion remarked, "I say, Field, there's something in your sawdust idea, after all. Mr. Freeland and our German friend have tried it in a small way, and think it worth while to make a more extensive attempt, and we are introducing some special machinery, as we find we can get a pulp by a different process to that hitherto adopted." Step by step improvement followed in both England and Germany, and it would be difficult now, after thirty years, to know the commercial value of an industry which owes its birth to an inspiration which was as freely given to the world as it was freely received by the donor. I think I may claim the honor of "freighting the tide" for many others than myself (for it has never brought me the value of a sheet of paper), and while thinking of the fortunes which have been the outcome of my freely-spoken thoughts, philosophy consoles me in that the world is the gainer because of my sojourn in it—and, really, I am none the poorer pecuniarily, inasmuch as I could not lose that which I never possessed.—British Paper Maker.

## The Wood Supply of Europe.

Farmand, the trade journal of Norway, reviews the European timber resources as follows:—

The forest area of Europe is estimated in one calculation which we have seen to be about 750 million acres, or about 31 per cent. of the total surface of our Continent. This forest area is divided as follows:—

	Acres	pr. inhabited Acres*
European Russia ..	464,611,000	4.30
Finland .....	52,500,000	18.75
	517,111,000	
Austria and Hun- gary .....	52,837,600	
Sweden .....	49,390,000	9.70
Germany .....	34,990,000	0.62
France .....	24,021,000	0.61
Norway .....	16,848,000	7.00
Spain .....	16,065,000	0.88
Italy .....	10,115,000	0.31
Bulgaria .....	7,603,000	2.40
Roumania .....	6,367,000	1.08
The British Isles..	3,030,000	0.10
Other Countries ..	11,736,000	
Europe total ....	750,113,000	

Towards the end of the Middle Ages or in the beginning of the Modern Era the forests of the countries in the West of Europe were found to be no longer sufficient to supply the quantities of wood goods which were required, as the consumption was rapidly growing with the increase of population and of wealth in Holland, France, England and Spain.

The commencement of the European trade in soft wood was made by foreigners, Dutchmen and Englishmen, who

sent their own vessels to the nearest place where logs or boards might be obtained, viz., the South Eastern parts of Norway, where these traders purchased the timber direct from the peasants who were owners of the forests. At first the logs were prepared for building and other purposes exclusively by the axe; later on hand saws were introduced which were occasionally used in our country until towards the middle of last century. And in the infancy of the Norwegian export timber trade there were no native timber merchants.

About 1530, however, saw mills, driven by water power, were introduced into our country, and as the demand for boards increased rapidly the number of water saw mills likewise grew rapidly, until there were in 1650 no less than 1,389 such mills in our country. Simultaneously a separate class of timber merchants, who were generally also ship-owners, had come into existence.

In 1688 a Royal Commission was appointed to enquire into the state of the forests, because it was supposed that the consumption of wood goods was greater than the forests could stand, and restrictions were imposed. The complaint that our country would soon have no forests left has been existent for 250 years. Regular statistics for the wood goods exports from Norway in the first centuries are not available. A report from 1664 states that in that year the export amounted to 240,550 Læster, which corresponds to more than 505,155 registered tons, a very large figure for those times. For the eight years 1776-83 the export is given at 122,752 Læster, or 257,779 registered tons, as the annual average, and for 1804-6 the average is given as 260,000 Læster, or 546,000 registered tons. The export was:—

\* 100 acres = 40 hektar.



	Reg. tons.		Reg. tons.
1815-19	338,830	} annual average	1860 679,386
1820-24	358,340		1865 903,357
1825-29	401,806		1870 882,229
1830-35	447,444		1871 948,305
1836	488,920		1872 1,037,142
1837	479,728		1873 1,075,181
1838	507,295		1874 921,054
1839	571,635		1875 751,302
1840	559,858		1880 895,206
1841	560,162		1885 860,387
1842	554,341	} annual average	1890 905,294
1843	561,240		1895 796,912
1844	555,999		1900 963,113
1845-49	436,465		1985 873,922
1850-54	568,734		1909 618,112
1855-59	639,681		1910 558,271

In 1860 floorings mills were introduced into Norway, since which time floorings have been the most important item in the export of wood goods from our country, which had for more than thirty years a practical monopoly in the floorings trade.

About 1870 the first mechanical wood pulp mill was started in Norway, and a couple of years afterwards the first cellulose mill. It will be within the knowledge of our readers how rapidly the pulp trade has grown since that time. In 1910 the export was equal to about 500,000 tons moist mechanical pulp and about 200,000 tons dry cellulose in the manufacture of which not far from 2,500,000 M. of solid wood was used. And in addition the country has a very large paper industry.

The average size of logs felled in our country has been constantly declining during the last century, and is now probably hardly one-half of what it was a hundred years ago. But just because so many more trees are felled for the pulp mills which prefer logs of smaller size and because more attention is paid to a proper and scientific treatment of the forests, the growth of the Norwegian forests is supposed, by the best authorities, to be considerably more rapid now than it was in the beginning of last century; the annual growth reaches a larger

total cubic quantity, but as the trees are cut at a much younger age the average log is much smaller.

The consumption of wood goods continually growing, Norway could not in the long run supply the whole, and buyers had to go further afield to get the necessary supply.

In the course of last century the timber trade of the Gulf districts of Sweden grew rapidly, and has been for many years the dominating factor in the European markets for soft wood goods. At first these districts shipped only sawn wood. As the logs were considerably cheaper there than in Norway, many Norwegian timber merchants emigrated to Sundsvall and other Swedish Gulf ports. Having a cheap raw material, the Swedish mills could afford to saw their battens and boards square edged, and owing to the fine quality of the logs Swedish battens, particularly from the Sundsvall district, have been for many years the standard quotation of the wood goods market. At the commencement of the timber trade from the Swedish Baltic ports freights from there were considerably higher than from East Norway, but this advantage for Norwegian shippers has now practically disappeared.

Since the beginning of the nineties several of the large Swedish saw mill companies have also erected planing mills, and so much has the floorings industry increased in Sweden in recent years that in the year 1908 the floorings export from that country was somewhat larger than Norway's, and in 1910 Sweden exported 141,000 standards of floorings, against only 94,000 standards from Norway.

The mechanical wood pulp industry of Sweden is not so important as in our country, because there are not so many suitable waterfalls; but in the course of the last fifteen years the cellulose industry has been developed in Sweden to a very large extent, the production being considerably more than double of what it is in our country.

As a consequence of this evolution the export of sawn wood goods from Sweden has culminated and the average size of logs has commenced to fall in that country just as had happened somewhat earlier on our side of the border. We suppose, however, that this reduction of the size does no more in Sweden than in Norway mean that the forests are being overtaxed; the forest capital which had accumulated during previous centuries has been taken out of them, but they will grow more rapidly than before, except in localities where the climatic conditions are too severe.

In Sweden a charcoal industry of considerable importance is still carried on in many districts; this industry was discontinued in Norway by the middle of last century, owing to the advancing price of wood.

Long before the wood goods export from Sweden had culminated, Finland had become a more and more important factor in the wood goods markets of the world, and the Finns obtain very fair prices for their best brands of sawn wood, although they do not quite reach Swedish top prices. Finland has also a large pulp industry, particularly in sulphate cellulose, but that country, at the same time, still exports considerable quantities of pulp wood.

In an article on the consumption of wood in Europe in our issue of February 29th, 1908, we stated that the cellulose production of Europe at that time was estimated at 1,600,000 tons, and we calculated the production of mechanical pulp in Norway, Sweden and Finland at 1,000,000 tons. For the production of these quantities about 10,000,000 M.<sup>3</sup> of solid wood were required. For comparison we gave the figures for the export of wood goods proper in 1905, being:—

From Norway .....	1,850,000 M. <sup>3</sup>
" Sweden .....	5,575,000 "
" Finland .....	6,000,000 "
<hr/> Total .....	14,519,000 M. <sup>3</sup>

That is to say, while the forests of Europe had, some thirty or forty years ago, only to satisfy the demand for wood goods proper, which was at that time considerably smaller than it is to-day, they must now-a-days also yield this enormous and rapidly increasing quantity of wood for feeding the paper machines, not only of our own Continent, but to some extent also of America and the Far East.

As we have sketched above, there has been a distinct tendency towards progress and evolution in the industry of which wood is the raw material; from our country at first whole logs were sold to the foreigners who came here to fetch them, then hewn bulks were exported, afterwards sawn wood, floorings, pulp and, finally, paper. A similar tendency is clearly perceptible in Sweden, and also in Finland. Under the influence of this tendency, the value of timber has constantly advanced, not only in Norway but likewise in Sweden and Finland, and simultaneously the size of the logs obtainable in Scandinavia and Finland has been declining.

There is therefore no reason to be surprised that the timber trade has continued in recent years very markedly to extend from West to East, when a similar tendency can be so easily demonstrated during the past four centuries.

The enormous forests of Russia have been rapidly opened during the last decade or two to the trade of the world; and as these resources are almost illimitable it is mainly a question of improvements in the means of communication, how rapid shall be, during the coming decades, the growth of the supplies from Archangel, St. Petersburg, Riga, Windau and other Russian timber exporting ports.

It is a natural evolution: The more highly manufactured articles, such as paper, pulp, joinery, floorings, etc., are drawn from the nearer countries, while logs and sawn wood are obtained from

more remote and, industrially, less developed countries, where the cost of timber is also lower.

It is, of course, the advancing value of forest produce in recent years which has been the cause of the increased exports of wood goods from Russia; when this development has continued for some time longer it is reasonable to anticipate that it will greatly stimulate a general improvement in the Russian means of communication; new railways will be built and branches will be opened; the rivers will also be improved as a means for the transport of logs. And thus vast forests will become available and, for a time at least, a check will thereby probably be put to the continuation of the rapid advance in the value of timber. And it is also reasonable to expect that those faults in the manufacture and sorting of Russian wood goods of which complaints have pretty frequently been made will be remedied in course of time.

But on the other hand, it must be borne in mind that the importation to Europe from America of spruce is declining, and that the consumption of paper has been practically doubling each decade during the past century.



#### PRODUCTION OF PULP AND PAPER IN SWEDEN.

The manufacture of cellulose, or wood pulp, is a highly developed Swedish industry, reports Consul Thomas H. Norton, in a report to the United States Bureau of Manufactures. The factory for grinding wood, established at Trollhättan in 1857, was the pioneer of the pulp industry. The preparation of chemical wood pulp was introduced in 1871, the soda process being used. In 1874 came the sulphite process, Francke using calcium bisulphite, and Ekman the magnesium compound. Both of these methods are now utilized, but that of Ekman is used to a less extent on

account of its greater cost; the product is, however, of a remarkable purity and gloss, and it is preferred as raw material for the finer qualities of paper. Swedish wood pulp ranks high, as the wood employed—aspens and spruce—is freer from resin than that available in most countries. The pulp factories of Sweden number 122, and in 1900 employed 6,910 operatives and produced 417,000 metric tons of pulp.

The exports of pulp reached 564,000 tons in 1909, as against 229,000 tons in 1900, and consisted of 372,000 tons of dry chemical pulp, 31,000 tons of wet chemical pulp, 46,000 tons of dry mechanical pulp, and 115,000 tons of wet mechanical pulp. The total value of the exports was \$15,372,000. Great Britain takes about 60 per cent. of the export, other heavy purchasers being France, Norway, Germany, Belgium, Denmark, and, recently, the United States.

There has been a serious overproduction of wood pulp during the past three years and prices have been much disorganized. Recently the wood pulp associates of Sweden and Norway have agreed upon a systematic limitation of the production of mechanical pulp for 1911 and 1912. The prospective reduction during the period ending January 1, 1913, is fixed at 150,000 tons. No restriction is placed on the output of chemical pulp. As a result of this agreement prices of mechanical pulp have already been materially advanced.

The manufacture of paper is naturally closely allied with that of cellulose. In 1909 Sweden had 66 paper mills, employing 7,725 operatives, the production amounting to 250,000 tons, of which 137,510 tons, valued at \$7,346,000, were exported. The ratio of increase is about the same as that of cellulose. Of the paper exported, 80 per cent. goes to Great Britain and is used chiefly for newspapers.

Swedish filter paper for chemical purposes has maintained a world-wide re-

putation for a century. For a long period it was regarded as indispensable for the needs of the analyst, and the manufacturers enjoyed a practical monopoly. Rivals in other countries, especially in Germany, now compete in furnishing a filter paper carefully freed by treatment with hydrochloric and hydrofluoric acids from mineral matter. The remarkable success attained in earlier years by the largest Swedish firm was due to the use of the purest water available for manufacturing purposes and the choice of exceptionally pure raw material. The peculiar properties of the paper were largely secured by freezing it while in a moist condition. The formation of ice crystals rendered the feltlike mass sufficiently porous for the purposes of rapid filtration. This Swedish firm manufactures now a very choice grade of writing paper, made by simply dipping its filter paper into sizing.



#### PAPER PRICES AND SUPPLY.

The following bulletin comes from John Norris, of the American Newspaper Publishers' Association, New York. Mr. Norris is often rather biased in his conclusions.

The stock of news print paper on hand at mills exceeds the quantity reported for a long period. The capacity of the news print paper mills is beyond the requirements of the newspapers. There is an excess production on many other kinds of paper, especially manila, and for that reason manila mills are turning to news print paper, the price of which has been maintained for them at a high figure through the efforts of the International Paper Company. Recent rains have relieved any fear of a water situation, and mills are running on full time.

Northwestern paper mills have offered yearly contracts at \$1.95 and \$1.97 f.o.b. mill.

The New York Tidewater Mill contracted two weeks ago to sell 7,500 tons of its output. Its paper machines are to be furnished by Rice, Barton and Fales.

The New York World has contracted with James Outtersson for a considerable part of its supply of news print paper. It will obtain all of the product of the DeGrasse Mill, at Pyrites, Northern New York, which will immediately double its capacity from 60 to 120 tons per day. A third machine of sixty tons capacity is under consideration.

By the termination of the New York World's five year contract with the Great Northern Paper Company on December 31, 1911, the Paper Company will find it necessary to obtain new customers for nearly 40,000 tons of paper during 1912.

The International Paper Company has been soliciting contracts in Wisconsin. It is assumed this move was intended as a retaliation on the Wisconsin mill men who met at the Congress Hotel, Chicago, September 23, 1911, to discuss a price for the supply of the Chicago American contract of approximately 100 tons per day.

A news print paper mill, to be located on the Welland Canal, is reported by paper trade publications.

It is suggested that publishers who are urged to close their contracts for 1912 should insist that the paper maker agree to give them as low prices as he may sell to other papers. The Berlin Mills has made such agreements. The International Paper Company did so last year with some of its customers.

Seven thousand tons of news print paper were sold recently in St. Louis at \$2.13 and \$2.15 f.o.b. cars destination.

A Cincinnati paper has closed contract for half of its 1912 paper supply at less than \$2.16 sidewalk delivery.

The Berlin Mills Company, of Berlin, N.H., which recently built a sulphate pulp mill and Kraft plant at La Tuque on the St. Maurice River, Quebec, under concessions from the Quebec Govern-



ment, is credited by paper trade publications with plans for a \$500,000 mill at Three Rivers, which is at the mouth of the St. Maurice River.

The Ohio Select List closed for one year at \$2.15 f.o.b. destination for a supply of 3,000 tons to thirty Ohio papers—an average of 100 tons each. Smaller papers seem to be able to get a supply at \$2.15 and less from jobbers, but the International Paper Company and other large producers have been, until within a few days, maintaining their demand for \$2.25 and will probably continue to do so until the new mills come on the market with their offerings. The International Paper Company made pledges last year with some customers that it would meet the market price. It bought up the total output of a ground wood mill which had been planning to locate a paper mill at tide-water in New York harbor.

The abnormally high price for ground wood may bear investigation. The efforts to starve the pulp market resemble those transactions in 1906 and 1907, which disposed of the surplus of mills.

As a result of the threatened competition of the Powell River Paper Company of British Columbia, against the two paper mills of the Pacific Coast, the Willamette and Crown Columbia, many of the Pacific Coast papers closed five and seven-year contracts with the Willamette Paper Company at lower prices. The Willamette subsequently acquired control of the Powell River Paper Mill production of ninety tons per day. After that deal had been announced some of the papers which did not cover themselves reported an inability on the part of the Willamette Paper Company to supply them. There are indications of a gentleman's agreement among print paper mills on the Pacific Coast. Swedish paper has been offered on the Pacific Coast.

Reports from Chicago indicate that the International Paper price for paper

to three Chicago papers for the year 1911 was \$2.25 less two per cent.; that is, \$2.20½, and to the Hearst publication \$2.25 less three per cent.; that is, \$2.18¼. It is understood that lighter weight paper which reduced cost approximately six cents per hundred additional was another factor in the proposition.

The American Paper and Pulp Association is planning a campaign to urge upon Congress the repeal of Section 2 of the Act of July 26, 1911, providing for the admission of pulp and paper. The possibility of repeal is extremely remote. At the recent session of Congress there was an overwhelming majority in both Houses in favor of free paper from all countries. There were not sixteen votes in the United States Senate in favor of the Root Amendment. A roll call on that amendment was purposely avoided by the friends of the paper makers.

Attorneys for pulp and paper importers who have protested against the payment of duties on importations from Germany, Norway and Sweden report that the Treasury officials say they will not put "undue obstacles" in the way of the speedy determination of the right of "favored nations" to bring in pulps and paper free of duty. Nevertheless, the proceedings must take their course through the Board of General Appraisers and the Court of Customs Appeals, unless the Treasury Department shall acquiesce in the obvious effect of laws recently enacted by Congress.

The treaty of the United States with Sweden, which is a sample of all the treaties made by the United States with "favored nations" provides as follows:

"The King (of Sweden) and the United States engage mutually not to grant hereafter any particular favor to other nations in respect to commerce and navigation which shall not immediately be given to the other party who shall enjoy the same favor freely, if the concession was freely made, or on allowing the same compensation, if the concession was conditional."

The proclamations of President Taft in January and February, 1910, applying the minimum schedule of the Payne Law to Germany, Sweden and Norway, certified that all of those Governments accorded to the United States treatment which is reciprocal and equivalent.

The question of discriminatory duties upon pulp and paper has been thrust upon the Treasury Department by an inquiry of the Surveyor of Customs at Atlanta, who has asked for instructions about Swedish wrapping paper which the importer claims is entitled to free admission under the favored nation clause.

The St. Croix Paper Company and the International Paper Company are jointly interested through subsidiary companies in paper bag production. The St. Croix Company controls the Grand Lake Company, which recently admitted to its directory, Herman Elsas, the President of the Continental Paper Bag Company, a controlled company of the International Paper Company, which pleaded guilty to participation in the Wrapping Paper Pool. Elsas, its president, figured on the pool books as John Smith.

It is reported that if the plans of the Department of Justice do not miscarry, an effort will be made to hale into court, regardless of date of creation, all those combinations or mergers which avowedly aimed to suppress competition. The International Paper Company was of that class of corporation. The United States Supreme Court decided in the recent cases that age did not cure that illegality.



#### WAYACAMACK PULP AND PAPER COMPANY.

A large party of financial and other business men interested in the Wayagamack Pulp and Paper Co., headed by R. Forget, M.P., and J. N. Green-shields, K.C., went to Three Rivers,

Que., by special train a few days ago to inspect the property, and found everything in splendid shape. The company will be employing about two thousand men by the first of May next, when the mills will be in full operation. The only portion which is actually working at present has to do with the cutting and piling of timber, and a big mountain of this is one of the sights of the neighborhood. There are fifteen buildings in all, including the power station—power being supplied from the Shawinigan Company. The buildings are of solid cement, steel and brick construction, with cement roofs, with a ventilating process to counteract the "sweating" habit. The grounds are on Baptist Island, a mile and a half by nearly a mile wide, where wharfing and railroad conveniences are ample. Vessels of 35 foot draught can come and go direct to any portion or market of the globe. Large orders for their products are already received from Australia, South Africa, India and the United States. The timber limits owned by the company cover twelve hundred acres. One of the main features of the plant was that the liquors would be used repeatedly, by a new process installed, which would obviate waste. Eighty per cent. of the machinery was obtained from England. An immense supply of lumber is stocked up for use next year, by which time construction and installation work will be completed. The company will start operations on May 1, when the daily output will be a hundred tons of pulp and 50 tons of paper. The company's authorized bond issue is \$5,000,000, of which \$3,000,000 is issued, and the authorized capital amounts to \$5,000,000. Stock of the company has recently made great advances in price, owing to the reported coming merger with the East Canada Pulp and Paper Co., and perhaps other pulp industries.



W. J. Gage, president of the Kinleith Paper Mills, has been on a holiday to England.

### CONSUMPTION OF PULP WOOD IN UNITED STATES.

The preliminary statement showing consumption of pulp wood in the United States during the calendar years 1910, 1909, 1908 and 1907 has been issued by the United States Census Department. Prepared under direction of William M. Stewart, chief statistician for manufactures, by Jasper E. Whelchel, expert special agent.

The following tabular summary shows the kinds of wood used:

Quantity, in Cords, of Pulp Wood Consumed.

Kind of Wood.	1910.	1909.	1908.	1907.
Totals .....	4,094,306	4,001,601	3,346,953	3,962,660
Spruce, domestic .....	1,473,542	1,653,249	1,487,356	1,795,278
Spruce, imported .....	902,407	768,332	672,483	905,575
Hemlock .....	610,478	559,657	509,173	576,154
Poplar, domestic .....	315,717	302,876	279,564	352,142
Poplar, imported .....	45,359	25,622	22,653	19,798
Balsam fir .....	132,362	195,366	145,309	143,884
Pine .....	105,882	90,885	84,189	78,583
Beech .....	44,265	31,390	( <sup>2</sup> )	( <sup>2</sup> )
Maple .....	42,621	( <sup>2</sup> )	( <sup>2</sup> )	( <sup>2</sup> )
White fir, .....	30,845	37,176	( <sup>2</sup> )	( <sup>2</sup> )
Cotton wood .....	31,099	36,898	45,679	( <sup>2</sup> )
All other .....	97,092	151,179	140,547	191,246
Slabs, wood, etc. ....	262,637	248,977	( <sup>3</sup> )	( <sup>3</sup> )

It shows that except in 1908, owing to general trade depression, the quantity of pulp wood consumed in the United States has increased steadily during the several years, the gain in 1910 over the preceding year being 92,699 cords, or 2.3 per cent., while as compared with 1908 the increase was 747,353 cords, or 22.3 per cent., and with 1907, 131,646 cords, or 3.3 per cent.

Spruce is the species which is still cut in largest quantity as pulp material. It constitutes more than half the total quantity consumed, though it is being

replaced to some extent by other woods. The percentage of spruce in the total of 1907 was 68.2; in 1908, 64.5; in 1909, 60.5, and in 1910, 58. Poplar, pine, balsam, fir, beech and maple are coming more largely to the fore. In 1910, a substantial increase in the quantity of hemlock was also reported. The percentage of imported spruce in the total in 1909 was 31.7, while in 1910 it formed 38 per cent.

The reported consumption of slabs and other mill waste in 1910 was the largest ever recorded.

The total production of air dry pulp in 1910 was 2,533,976 short tons, distributed, by method of manufacture, as follows: Mechanical, 1,135,353 tons; sulphite, 1,065,621 tons; soda, 327,629 tons; sulphate, 5,373 tons.



A wire from Digby, N.S., says that Blackader's lumber mills near Weymouth, were destroyed by fire yesterday with a large quantity of lumber. The loss is estimated at \$25,000. The mills were insured for \$4,000. The Sissibo Lumber Company had \$13,000 insurance on lumber and Blanchard & Co., \$1,500. A small portion of the lumber was saved.

<sup>1</sup> Balsam.

<sup>2</sup> Included in "all other."

<sup>3</sup> Included with other wood by species.

## Pulp and Paper News

The Dundas "Banner" has been sold to McLean Bros., of Seaforth, Ont.

\* \* \*

A. C. Stielow, of the Bull River Power & Pulp Co., Milwaukee, Wis., proposes to establish a pulp mill at Fernie, B.C.

\* \* \*

A new Goldie & McCulloch boiler of 175 h.p. is being installed in the Georgetown Paper Mills of Wm. Barber & Bros.

\* \* \*

The Ottawa and Hull paper mills have had to rely largely for their supplies of pulp upon Buckingham, Three Rivers and Espanola mills.

\* \* \*

The Grès Falls Company is enlarging its pulp mills at Cap de la Madeleine. They have been busy manufacturing and shipping pulp.

\* \* \*

A Johnsonburg, Pa., company propose to build a soda pulp mill somewhere in Ontario. We have been unable to obtain fuller particulars, but the company are already in the field for limits in Northern Ontario.

\* \* \*

Work has begun on the erection of the Elliott Mfg. Co.'s paper board mill on Ashbridge's Marsh, Toronto. The capacity will be 15 tons per day.

\* \* \*

B. Haight, an employe of the Kinleith Paper Mills, St. Catharines, Ont., was killed owing to his clothing becoming entangled in a machinery shaft.

\* \* \*

W. J. Findlay & Co. are now manufacturing Kraft at their mill at Strathcona, Ont., for which they are experiencing a good demand.

\* \* \*

Thos. McDermott has been appointed Toronto manager of the Lincoln Paper Mills, St. Catharines, Ont., in place of F. Johnson, resigned.

\* \* \*

The corner stone of a new building for the Montreal Herald was laid a few

days ago, on the one hundredth anniversary of the paper's founding.

\* \* \*

The Union Bag & Paper Co., Three Rivers, Que., have started work on the extension of their pulp mill. The capacity will be increased to 100 tons daily.

\* \* \*

The Toronto Paper Manufacturing Co. have ordered from Marx & Co., of London, Eng., a set of Margalt lava suction rolls for machine No. 2, in their mill at Cornwall.

\* \* \*

The Toronto Paper Box Co.'s new factory was damaged by fire to the extent of \$7,000, including stock. Many fancy boxes for the Christmas trade were destroyed.

\* \* \*

H. J. Dickerson, formerly of Chicago and more recently a resident of Ottawa, the inventor of the Dickerson pulp machine, died at the latter city of heart failure.

\* \* \*

The executive of the American Protective Tariff League at a meeting last month, in New York, passed a resolution requesting the repeal of the act permitting the free import of print paper from Canada.

\* \* \*

The premises of the Standard Printing Co., Ltd., Halifax, N.S., who print the Evening News, Standard and Guysboro Times were gutted by fire and the plant badly damaged.

\* \* \*

We congratulate Geo. H. Millen, joint manager of the E. B. Eddy Co., Hull, Que., upon the recent celebration of his 73rd birthday. Employees presented him with flowers and others offerings showing their appreciation.

\* \* \*

The Western Canada Bag, Envelope and Box Board Co., Ltd., head office, Vancouver, B.C., have changed their



name to the Western Paper Mills, Ltd. Operations are expected to begin early next year. \* \* \*

The East Canada Power and Pulp Co. are to install in their plant at Murray Bay, Que., a 150 h.p. feed water heater, steam separators, oil separators, etc., from the Robb Engineering Co., Ltd., Amherst, N.S. \* \* \*

The E. B. Eddy Co. have let a contract for their new five-story warehouse in Toronto, to cost about \$50,000. Facilities will be provided for loading and unloading all wagons under cover, the teams driving directly into the building \* \* \*

Price Bros. & Co. a few days ago invited a number of Quebec financiers and others interested to visit the Jonquiere Mills, near Chicoutimi, on which the company are spending about \$2,000,000 in the construction of a new paper mill. \* \* \*

The Northumberland Paper and Electric Co., Campbellford, Ont., will add a new beater room to their board mill. The capacity of their ground wood mill was almost doubled recently through the addition of several new grinders and wet machines. \* \* \*

The Oriental Pulp & Paper Co.'s pulp mill at Bella Coola, B.C., will soon be completed. It will utilize "Sitka" spruce, which is said to be superior in length of fibre to the spruce of eastern Canada. The mill will have a capacity of 150 tons of dry pulp daily. \* \* \*

Plans for the development of the Grand Falls Co., Ltd., New Brunswick, where a large pulp mill was projected by Sir William Van Horne and associates, have not made much headway of late, the necessary financial arrangements not having been completed. \* \* \*

Several American capitalists are said to intend the building of a large factory for making paper out of peat, near Welland, Ont. They are said to have

acquired an option on about 5,000 acres of peat marsh. We have been unable to learn the names of the projectors. \* \* \*

A dispatch from Chatham, N.B., says that Carl Riordon, of the Riordon Paper Mills, and Charles Read, of Ottawa, arrived there to inspect the Miramichi pulp mills, as representatives of Sir John Millbank, of England, who has taken an option on the property. \* \* \*

The Quebec Pulp and Paper Company, capitalized at \$15,000,000, has just received its papers of incorporation. R. Forget, M.P., will finance the enterprise, which is the company said to be immediately behind the proposal to merge the Wayagamack and Eastern Canada Pulp and Paper Companies. \* \* \*

At a special meeting of the directors of the Spanish River Pulp and Paper Mills Co., on the 11th inst., A. H. B. MacKenzie, of C. Meredith & Co., Montreal; and R. L. Innes, secretary-treasurer of the Dominion Cannery, Ltd., Hamilton, Ont., were added to the directorate of the company. \* \* \*

The Newfoundland Government has recently made several changes in its customs tariff. The following articles have been made free of duty: New machinery for pulp companies, which cannot be locally manufactured, to be free, thus placing all concerns on the same basis as the Harmsworth Company; soiling paper; cartons and wrappers for local manufacturers' goods. \* \* \*

According to a preliminary report of the party sent out by the Quebec Government to explore the resources of the Abitibi and Height of Land districts, the land is extremely fertile. The wood is too small for lumbering, but admirably adapted for pulp-wood. The National Transcontinental Railroad will run through this country, opening it up for agricultural and pulp manufacturing purposes.

The trade of Newfoundland for the past fiscal year was the greatest on record. The exports to Great Britain increased by nearly half a million dollars, this increase being due to the output of the new pulp mills. None of the mill buildings of the Albert E. Reid Co.'s pulp mill were destroyed in the late forest fires, and the destruction of the timber was not as bad as was first reported.

\* \* \*

According to preliminary statistics gathered by the Forestry Branch of the Dominion Department of the Interior, last year's production of pulpwood in Canada amounted to over a million and a half cords, valued at nearly \$10,000,000. Of this, over 60 per cent. was shipped out of the country in an unmanufactured condition, which is an indication of the loss to Canadian labor and capital through this one item of raw material.

\* \* \*

Mr. Albertson, paper mill engineer, Kalamazoo, Mich., has been in Thorold, Ontario, making plans for the new mill of the Montrose Paper Mills, to be erected next year. It will be 250 feet long by 80 feet wide, three stories high, and be constructed of brick, steel and reinforced concrete. The company will install a 140-inch machine for making book and writing paper. Mr. Albertson also made plans for the new Interlake Tissue Mills at Thorold.

\* \* \*

Among the men behind the Banque Internationale, Montreal, which opened for business two or three weeks ago, are some prominent pulp and paper men, viz.: Rodolphe Forget, M.P., president; Robt. Bickerdike, vice-president, and J. N. Greenshields, K.C., director. They are heavily interested in the Wayagamack Pulp and Paper Co., Eastern Canada Pulp and Paper Co. (a merger between which is now being proposed), and other pulp and paper companies.

One of the machines for the new paper mills of the Spanish River Pulp & Paper Co., at Espanola, has arrived, but owing to the default of the company supplying the structural steel the mill buildings are not erected and the paper company have been put to a heavy loss and inconvenience. As about \$3,000,000 is invested in this project, and the mills when completed will turn out 100 tons of paper per day, employing 400 men at the mills and 500 in the bush, the trouble caused by this delay is a very serious matter.

\* \* \*

The report appearing in some of our exchanges to the effect that a million dollar pulp mill is to be established at Thorold, appears to be only a revival of the roorback item which started in one of the Toronto papers just before the election, in the interests of the pro-reciprocity campaign. Enquiries at various points along the line of the Welland Canal, fail to elicit any information of such a project. A mill of this size, if limited to the grinding of pulp, would more probably be located near the wood, and where the waterpower was cheaper.

\* \* \*

The Bronson Pulp and Paper Company, Limited, of Ottawa, have prepared plans for a 15 grinder woodpulp mill, to be located on their Crown Acre property in the Chaudiere district of that city. The initial development will be about 2,000 h.p., which will drive 5 grinders. The excavation for the tail race, etc., was started early last spring, and the building, which will be of concrete and brick, was commenced some time about the middle of the summer. The company hope to have a portion of the plant in operation in the early spring of 1912.

\* \* \*

The public are offered by the Dominion Bond Co., Toronto, \$200,000 of the sinking fund bonds of the Spanish River Pulp and Paper Co., who are erecting a new 110 ton news print plant at Es-

panola, which is nearly completed. The bond company recently secured the entire \$800,000 of bonds to cover the cost of the erection of the paper plant which will be completed in December. Six hundred thousand dollars of the bonds were disposed of privately. The earnings on the ground wood plant this year will, it is expected, reach \$250,000, and it is estimated that the annual profits of the company, after the installation of the paper mill, will amount to \$450,000.

\* \* \*

At a meeting at Binghamton, N.Y., last month, of the Bayless Pulp & Paper Co., whose dam at Austin, Pa., burst recently with such disastrous consequences, the following statement was made by President G. C. Bayless: "The Canadian properties owned by the company are most valuable and the water power development on the St. Anne River will be continued for the purpose of establishing there a wood pulp mill. One of the Canadian properties may be offered for sale. It was determined, through proper legal procedure, to immediately establish a pulp and paper mill in Austin, Pa. The whole matter was referred to the board of directors for detail of action."

\* \* \*

The new ground wood mill of the Brompton Pulp & Paper Co. is expected to be running in February next, with eight grinders and a capacity of 56 tons a day. The two new rotaries will double the capacity of the company's sulphate plant at East Angus, making it 75 tons a day. Six new boilers are being installed there with a new 112-in. machine for sheathing papers. This machine and the 44-foot driers are from the works of J. H. Horne & Sons Co. at Lawrence, Mass. The boilers, tanks and rotary machines in connection with the sulphate plant, are being supplied from the Jenckes Machine Co., of Sherbrooke. Mr. Bothwell, manager of the Brompton Pulp and Paper Co., spent a few days in Toronto this month.

The Northern Sulphite Company, Sturgeon Falls, and E. R. C. Clarkson, brought suit against John Craig and the Occidental Syndicate, of London, England, for a declaration that the syndicate had acquired fifty-one first mortgage bonds with the Sulphite Company's money. Chief Justice Meredith at Osgoode Hall, has given the plaintiffs judgment. The conflicting claims of privileged creditors and bondholders, of whom there are two sets whose claims interlock, have prolonged the difficulties of untangling the legal knots, but there is now hope of reaching common ground, and an English syndicate is now negotiating for the purchase of the whole property. Meantime, the sulphite mill is producing pulp, chiefly for the United States market.

\* \* \*

In the case of Brompton Pulp and Paper Co. vs. Bureau, which came up for argument in Ottawa last week, J. H. Kelly objected to the jurisdiction of the Supreme Court of Canada to hear the appeal on the ground that the matter in controversy did not fall within the subjects limited in respect of appeals from the province of Quebec. Mr. Stuart, K.C., contended that the construction and maintenance of a power dam and the right of service to use the dam was questioned, and, therefore, rights to real property were involved and the appeal would lie. The court decided that the only issue was one respecting the amount of damages resulting from the construction of the dam, and as they amounted to \$200 only, there was no jurisdiction and the appeal was quashed.

\* \* \*

The long drawn-out dispute between the town of Fort Frances and E. W. Backus, president of the Ontario and Minnesota Power Co., was terminated recently to the satisfaction of both parties. The town had sued Mr. Backus for his back taxes, but the well-known Minneapolis capitalist decided to discontinue defending the action and paid the

town \$6,000, being the full amount of the taxes levied in 1910 on an assessment of \$400,000, together with the costs in connection with the case. The amount claimed for arrears on school taxes was not pressed. In connection with the settlement Mr. Backus stated that he would guarantee that inside of a year he would have a large paper and pulp mill erected in Fort Frances to use the Canadian share of the power. The town has been fighting for this for some years.

\* \* \*

Good progress is being made with the Dryden, Ont., pulp mill, which will be a large concern. The building will cover 50,000 square feet. The chemical recovery room, 130 feet long by 80 feet wide, the woodroom and the cutting up room, will be separate from the main mill and form a block with the sawmill, while the digester room will be 85 feet high and the blow tank room 60 feet high. All the rooms are on a large scale, the screen room being 90 feet long and 50 feet wide, the boiler house and tank room 140 feet by 50 feet, while the main paper machine room is 210 feet long and 60 feet wide. The mill's initial capacity will be 10,000 tons per annum, to produce which will be required besides wood, all the refuse from the sawmill. It is hoped to have the mill in operation by July next. The rate-payers of Dryden recently passed a by-law to sell to the company a large park, to exempt them from taxation for ten years and to fix the rate of assessment on its property at \$60,000 for ten years. The company's new planing mill was recently destroyed by fire at a loss of \$10,000, covered by insurance.

\* \* \*

The Powell River Pulp and Paper Co. will hold their formal opening some time during the present month—probably upon the B. C. Premier's return from the East, as it is hoped to have the Prime Minister and several of his colleagues honor with their presence the important event. The recent blowing out of one

of the penstocks explains the postponement of the formal inauguration of the plant. It is now a practical certainty, in view of the rejection of the reciprocity agreement, that the company will double the capacity of its mill during the coming year. It is expected that the work on the addition will begin this winter or as soon as the present plant is in good running order. The increase will cost about one million dollars, making the total initial expenditure on Powell River about \$3,500,000. The capacity of the present plant is about 100 tons of paper per day. With the additional two machines (there are two in now) the plant will be able to manufacture two hundred tons of commercial paper daily. This will make the plant rank well up with any on the Pacific coast.



—The Department of Trade and Commerce has received a despatch from the British Consulate at Christiania stating that according to the Farmand, mechanical pulp stocks in Norway are exhausted owing to a restriction in production, the recent lockout and purchases by America. Paper manufacturers have been advised to buy dry pulp rather than stop the mills, as everything points to a mechanical pulp famine in the coming winter, owing to the shortage in water in South Norway, Sweden and Finland.

—A report from W. A. Beddoe, Trade Commissioner in New Zealand, showing the value of Canadian exports to that colony for the quarter ending June 30, reveals that printing paper makes up one-third of the exports, amounting to £15,525 sterling. The nearest approach is agricultural machinery totaling £3,692 sterling. In addition to printing paper there was an export from Canada to New Zealand of paper hangings, valued at £2,212 sterling.



## NEWFOUNDLAND PULP AND PAPER NEWS.

(Special to Pulp and Paper Magazine.)  
Nov. 6th, 1911.

Newfoundland promises to become famous as one of the great pulp and paper manufacturing countries of the world. The latest prospect is the erection of a paper mill on the Gander River, equal in output to the famous Harmsworth mills at Grand Falls. F. E. Remsen, C.E., assistant engineer with Geo. Hardy, the noted New York expert, designer of pulp and paper mills, has been investigating the waterpower facilities in the vicinity of Glenwood, with the view to the erection of a large paper mill there. This investigation has been on behalf of J. Loizeau, of New Jersey, who has given considerable study and investigation to the possibilities of the operation of a large paper manufacturing concern on the banks of the Gander River, which flows into a bay of the same name, situated on the east coast of Newfoundland and which has long been famous for its large yearly production of first-class lumber. Should Mr. Remsen's report prove satisfactory it is the intention of the promoter to push forward operations of construction with all possible speed.

A new Club House, erected at Grand Falls, by the Anglo-Newfoundland Development Co. for the use of its operatives, was opened a few evenings ago with a grand ball. The opening address was delivered by Vincent Jones, the superintendent of the Grand Falls paper mills, while M. S. Sullivan, chairman of the Club Committee, had charge of the general programme. The building is large and well laid out. Among other departments it will contain a reading room and a library. There will also be a restaurant connected therewith. The building is lighted by electricity, is steam heated, and provided with all sanitary facilities, including shower baths.

The A. N. D. Co. hope to have their two new paper making machines in

operation by Christmas; the work of erection is being pushed rapidly ahead.

There is at Grand Falls at present a population of about 4,000 people. The A. N. D. Co. have a large gang of men employed cutting pulpwood for their mills. They have at present sufficient wood cut and placed in their yards to supply the present capacity of their mills till next June. Since navigation opened last spring they have shipped a cargo of paper to the Old Country almost every week, and they hope to make several other shipments before navigation closes for the season.—A. L. B.



## NEW INCORPORATIONS.

Angevine Lumber Co., Ltd., Vancouver; capital, \$50,000. To operate sawmills and deal in wood products of all kinds.

Canadian North Eastern Power Co., Vancouver; capital, \$50,000. To operate mills for the manufacture of lumber, pulp and paper.

The Brittingham & Young Co., Ltd., Vancouver; capital, \$50,000. To do business as woodworkers, lumbermen, pulp and paper mill proprietors, etc.

Arkansas-Vancouver Timber and Lumber Co., Ltd., Vancouver; capital, \$2,000,000. To operate saw and shingle mills and act as dealers in all forest products.

Herald Press, Ltd., Walkerville, Ont.; capital, \$40,000. To carry on business as newspaper proprietors and general printers and publishers. J. E. Dobie and W. Woollatt, of Walkerville.

The Canada Coal & Chemical Co., Ltd., Winnipeg; capital, \$10,000,000. To treat wood in order to prolong its life, manufacture pulp, etc. T. D. Thompson, financial broker, and D. B. McDowell, lumberman, Winnipeg.

Victoria Home Construction and Investment Co., Ltd., Victoria, B.C.; capital, \$50,000. To carry on business as timber merchants, and sawmill, shingle mill and pulp mill proprietors.

# Pulp and Newsprint in the United States and Canada

From the Report of the United States Tariff Board on Costs of Production

(Continued from last issue)

Since we publish figures of mill cost and also figures of prices it is necessary to consider briefly the relation between the two in connection with investment. It is not the problem of a board of inquiry to consider what is a "reasonable" price or a "reasonable" profit. At the same time certain illustrative examples should prove of value. The greater the necessary investment for a given value of product, the higher must the margin be between mill cost and mill selling price. Profit per unit of product means nothing as to profit on investment unless the amount of the investment is known. Investment figures as already shown vary widely. Any of the following calculations are purely illustrative and can easily be adjusted to different investment estimates.

If we start, for illustration, with a 100-ton balanced mill, and assume (1) investment of \$17,000 per ton per day, (2) a full output of 31,000 tons per year, (3) a depreciation charge of 3 per cent. or \$1.75 per ton, (4) interest on working capital (\$3,500 per ton per day), say 60 cents per ton, if not included in total investment, (5) a margin between mill cost and price f.o.b. mill of \$10, we should get as a result:

Margin .....	\$10.00
Less depreciation .....	\$1.75
Less interest .....	.60
	2.35
	7.65

On 31,000 tons this would be \$237,150 per year, or 13.94 per cent., on a total investment of \$1,700,000. Keeping the depreciation charge constant, as deducted from nominal margin—that is, allowing in no case more than a 3 per

cent. depreciation on \$17,000 per ton per day—we should have on the nominal margin of \$10 between mill cost (less depreciation and interest on working capital) for an investment of \$17,000 per ton per day, 13.94 per cent. on investment; \$20,000 per ton per day, 11.85 per cent. on investment; \$25,000 per ton per day, 9.40 per cent. on investment; \$30,000 per ton per day, 7.90 per cent. on investment.

If the margin is \$5, the per cent. on investment would be one-half the above. On the other hand, if the amount of investment is less, such a margin would show greater profits. For example, taking the low figure of \$14,000 per ton per day (assuming \$4,000 for hydraulic development and \$10,000 for construction and equipment) the earnings on investment would be 17.82 per cent.

The matter may, perhaps, be made clearer by being put in another way. Suppose a well-balanced plant to own its own wood supplies and to charge no profit or stumpage on the wood delivered to the pulp mills, and no profit on the pulps delivered to the paper mill. In other words, suppose the whole profit on the total investment for woodlands, hydraulic development, and the three mills to be extracted from the margin between mill cost of paper and mill price. In this case, for purposes of comparison, we may assume that the depreciation charge and interest on working capital are charged into the mill cost, not of course on the basis of the whole investment, including lands, but on a reasonable basis for construction and equipment. In such case a margin of \$10 per ton (after allowing for depreciation and interest on working capital) would represent on a total investment (woodlands included) of—

	Per cent.
\$25,000 per ton per day.....	12.40
\$30,000 per ton per day.....	10.33
\$31,000 per ton per day.....	10.00
\$35,000 per ton per day.....	9.20

From this it appears that after deducting from mill cost all intermediate profits from wood to pulp, but including depreciation on plant, etc., every dollar of margin between cost and price (assuming full output) would represent 1 per cent. on an investment of \$31,000.

In connection with figures of this kind reference must be made to the problem of giving a theoretical cost of production based on an ideal plant. In other words, the question may be asked what paper ought to be made for. It has been suggested that in lieu of giving costs as they are we should name some one figure as a "fair cost" in a "typical" or "fair" mill. Any study of cost figures will show that such an estimate would be absolutely unwarranted. We have considered it our function to collect facts and present them in intelligible form. From a consideration of the foregoing tables may be derived the actual existing costs of production, with an analysis of items of transfer profits, depreciation charges, and the like. If for any reason the average under existing conditions is not considered a satisfactory basis of comparison, it is perfectly easy to find from the tables not only the highest and the lowest, but percentages produced at different costs. The figures of actual cost which we were instructed to obtain vary widely, not only between different mills, but in the same mill for different periods. At the same time the reader can easily eliminate the small percentages produced at the two extremes and for a large part of the industry arrive at cost figures, either total or by separate items, within much narrower margins. The data regarding wood costs and prices, transfer profits, investment, depreciation, and equipment will furnish additional material for estimates of

"reasonable" cost to those who care to make them. Such estimates are, however, purely theoretical. They are naturally made by underwriters or engineers and the most honest estimates of efficient experts are often proved false by the results. In view of these facts we have held it our obvious duty to avoid theoretical calculations and to give the actual costs as we find them under existing conditions.

#### **Costs of Production Extending Over a Series of Years.**

It may be of interest to compare the cost of production over a longer period than is covered by the general tables in this report. For this purpose not all of the establishments' schedules were available, nor did representatives of the board secure these data for all of the establishments in which they might have been available, owing to the lack of time. However, it is possible to show for several plants, and for some groups, the costs for a considerable period. The number of years covered by the various plants will not be the same, and for this reason some will have to be shown separately. Wherever a number of plants have been used or combined in one table the same plants have been used for each year, that is the statements for each item for each year are for identical plants, and where this could not be safely done no grouping was attempted, but the plant shown on separate table.

(Continued next month.)



J. F. Ellis, general manager of the Barber-Ellis Co., wholesale stationers and paper manufacturers, Toronto, recently returned from a business trip to Vancouver and the West.

Douglas & Ratcliff, paper dealers, Toronto, have recently sold large shipments of Canadian paper in the United States. They report business particularly brisk.

### BRITISH PULP AND PAPER MARKETS.

The World's Paper Trade Review reports conditions as follows:—

**Wood Pulps.**—The position remains unchanged, but buyers realize that they cannot obtain pulp unless they are prepared to pay the makers' price. The whole tendency of quotations for next year is on the higher scale.

Prices for chemical wood pulps remain steady, and from the pulp makers' point of view the outlook is good.

A steady market is reported for chemicals, with a brisk demand, particularly on export account. Ammonia Alkali, 58 per cent., is quoted £4 5s. to £4 10s. f.o.b. Liverpool; Bleaching Powder, £4 15s. per ton f.o.b. Manchester; Caustic Soda (high strength), £10 2s. 6d.; Soda Crystals, £2 12s. 6d.; and Salt Cake, £2 2s. 6d.



### RAGS AND PAPER STOCK.

Montreal, Nov. 11, 1911.

Dealers report very little improvement in general trade conditions in the United States. They think that matters are picking up a little but the alteration is still too slight to be of any consequence. Demand for the various classes of waste which are purchased by the United States has been very disappointing not only during the past month but for several months past. The result has been that there has been quite a little accumulation of stocks, there being no other outlet for the waste stock. On the whole, therefore, the market is a little on the easy side and it is just possible that prices might be shaded from last month's quotations. The strong feature of the market is the hope that trade will pick up presently in the United States. As soon as there is an increased demand for waste the market will stiffen right up, and holders are encouraged by such slight evidences as are being offered of an improvement in the situation across

the border. In the Canadian markets conditions are in every way satisfactory. The following prices are quoted:—

Shirt Cuttings—	Per 100 lbs.
White . . . . .	\$5 25 to \$5 50
Unbleached cottons . . .	4 25 to 4 50
Shoe Rag Cuttings—	
Bleached . . . . .	4 25 to 4 50
Mixed white . . . . .	2 75 to 3 25
Light print . . . . .	3 00 to 3 25
Overall Cuttings—	
Blue . . . . .	3 00 to 3 50
Brown . . . . .	2 00 to 2 50
Paper Shavings—	
Hard white . . . . .	1 90 to 2 00
Soft No. 1 white . . . . .	1 50 to 1 75
Soft No. 2 white . . . . .	1 00 to 1 10
Mixed shavings . . . . .	0 45 to 0 55
Ledger stock . . . . .	1 00 to 1 25
Printed book . . . . .	0 80 to 0 90
Common waste . . . . .	0 20 to 0 25
Roofing Stock—	
No. 1 satinettes . . . . .	0 75 to 0 80
No. 2 satinettes . . . . .	0 45 to 0 50
Sundries—	
Old bagging . . . . .	0 60 to 0 70
Manila rope . . . . .	2 25 to 2 50



### CANADIAN PULP AND PAPER MARKETS.

Toronto, Nov. 13, 1911.

All branches of the pulp and paper industry report business brisk and, with one or two exceptions, satisfactory conditions. The news print mills have been rushed with orders, and in fact have had to turn down several enquiries from the States. Coated paper mills report business very brisk, and writing mills which have had a somewhat easier time during the last three or four months, prior to which they were working at full capacity, report a tendency to return to the latter condition. The demand for Kraft, manilas, and wrappings seem to be improving, although prices are still unsatisfactory. Complaints are heard in some quarters to the effect that makers of Kraft and wrapping are sacrificing quality to offset the low prices ob-



tainable. This it need not be said, is poor policy.

The pulp market is stiff. Most of the Canadian mills have been working on contract, and have not begun to pile. They have been greatly hampered by low water, especially in Quebec and Eastern Ontario, but water conditions have improved materially during the last month. Ground wood sells for \$23 to \$26 per ton delivered in the United States. Sulphite has stiffened in price owing to shortage in Scandinavia, through the strike and low water. It sells at the mill at about \$38, or more for higher grades.

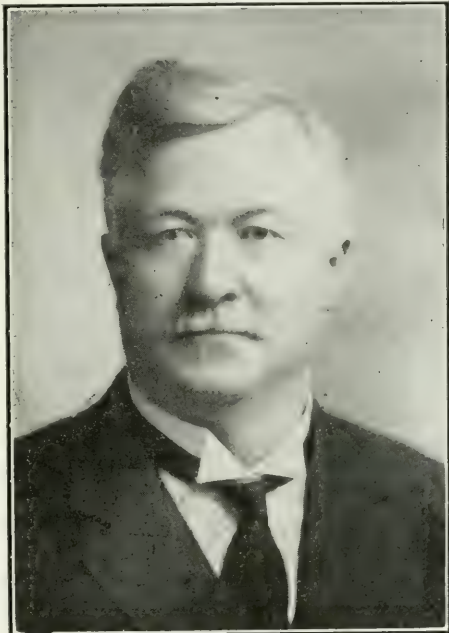
(Continued on Page 74.)



#### FRANK N. MCCREA.

The only direct representative of the pulp and paper industry in the province of Quebec elected in the new Parliament, is Frank N. McCrea, of Sherbrooke, president of the Brompton Pulp and Paper Co. As a Liberal his victory is remarkable, in that the constituency of Sherbrooke has been a Conservative stronghold for years, and that the large industrial element of the electorate was expected to favor his opponent on the reciprocity question. As anti-reciprocity candidates won in most other industrial constituencies, the election of Mr. McCrea is attributed to his personal popularity and to the confidence he has gained among the people of the city and county during his many years residence. Mr. McCrea was born on a farm in South Durham, Que. His first venture in business was in the hemlock bark trade and this led to a connection with the timber trade, and that in turn to railway enterprises and the pulp and paper business. One of his largest and boldest deals was the acquisition of the Lotbiniere and Lake Megantic Railway and its lands, from King Brothers, the asbestos men. The adventure was considered a rash one at the time, but Mr.

McCrea saw further ahead than his friends, and the outcome was a profitable one. Mr. McCrea afterwards bought up the assets of the Royal Pulp & Paper Co. of East Angus, and he merged that mill and lands with the Brompton Pulp & Paper Co., of which he is now president, and is president also of the Lake Megantic Railway. In addition to these interests, he is president of the Sher-



Frank N. McCrea, M.P.

brooke Lumber Co., the Etchemin Lumber Co., the Lotbiniere Lumber Co., and the Standard Fire Insurance Co., and is a director of the Eastern Townships Bank and other local institutions. He was mayor of Durham, and on moving to Sherbrooke was elected an alderman of that city.



The Hamelin & Ayers Co., Ltd., have closed down their pulp mill at Lachute Mills, Que., as they are devoting all their water-power to generating electricity. They have an almost new plant for sale. Particulars will be found on page 66.

## MONTREAL PULP AND PAPER MATTERS.

(Continued from Page 390.)

During the past month has been formed the Quebec Pulp and Paper Company with a capital of \$15,000,000. This new concern will, it is understood, form one of the largest paper organizations on the continent, and according to a well informed authority, terms of amalgamation with several well-known paper and pulp companies throughout the Dominion are now actually in progress, with every indication of success.

The new company will construct huge modern mills in this province, one or two of these being already in course of erection. The pulp and timber areas of the company are said to be among the most valuable in Eastern Canada, while from a financial point of view, the whole undertaking is already a success.

Information of a more definite character concerning the Quebec Company seems to be a little difficult to obtain, and it is evidently the belief among financial circles that it is largely in the nature of a holding company for the merging of some of the companies above mentioned. In fact, it is hinted that the Wayagamack and Eastern Canada plants are well suited for an amalgamation of this character. It is also claimed that bond and stock issues will shortly be made, and many of the securities will go abroad, particularly to London and Paris and other financial centres. Mr. Rodolphe Forget, M.P., who is closely identified with some of the concerns mentioned, is evidently one of the factors behind the Quebec Company and, no doubt, already has the whole deal figured out in his ready brain. Until more definite news is received, statements and denials will no doubt appear regarding the project under discussion.

### New Brunswick Timber Deal.

From Fredericton, N.B., comes the news that Mr. Stanley Douglas of that city has purchased what is known as the Fleetwood Block, near the village of Stanley, on the Nashwaak. The Fleetwood Block comprises about 3,000 acres

of valuable timber limits, containing a large quantity of both hard and soft woods, and the price paid is said to be upwards of \$10,000, although the exact price is not stated publicly. The Fleetwood Block has lately been the property of the Salvation Army, having been transferred to that organization upwards of ten years ago by a Mr. Reed, a philanthropic wealthy Englishman. The deed transferring the property to Mr. Douglas was signed by General William Booth, the head of the Salvation Army, before the Lord Mayor of London.

### The Pulp Market.

So far as conditions in the pulp markets are concerned, there is little new to note. Prices continue fairly steady but with a strong undertone, and there is a good demand for everything available. It looks as though during the next few years there will be ever increasing activity in this direction, and that a great many new concerns will establish their plants in Canada. Recent rains are very welcome. The water was exceptionally low and the output of the mills was being reduced.

The opinion of one pulp manufacturer is given for what it is worth: "Did you hear any talk among the trade of any change in the policy of the Quebec Government concerning the export of pulp-wood?" he asked. To a reply in the negative he said: "I have been told that Premier Gouin may make some sort of adjustment concerning the prohibition of the export of pulp-wood cut on Crown lands. In the first place this has deprived the government of much revenue, and in the second place European countries are desirous of getting the most favored terms with the United States. I have heard that Premier Gouin may modify the prohibitive measure in order to get free entry of paper and pulp from this province into the United States. This, it is thought, would give Canada the advantage in the matter of pulp and paper. However, I have no definite information on the subject and the rumor may have no foundation.

## INFLUENCE OF WEIGHT AND SUBSTANCE ON THE STRENGTH OF PAPER.

When the stipulations concerning the strength of standard paper were prepared, certain standard weights were fixed at the same time. In the course of time, private customers as well as administrative boards have commenced to order standard paper partly in thicknesses widely differing from the fixed standards. The paper manufacturer frequently had difficulty in attaining the stipulated strength for such abnormal weights and this is often only possible by considerably improving the furnish. Moreover, in such cases, the paper machine must be worked slowly and carefully, and it often happens that the manufacturer loses money by executing such orders. The influence of the thickness on the strength of the paper is undoubtedly very great and a number of observations hereon will now be given.

The following case was very remarkable. Standard paper 5a, was ordered with the abnormally high weight of 280 g. per square metre. We tried at first to make the paper in the usual way with about 15 per cent. waste, 50 per cent. of a firm Mitscherlich cellulose and 35 per cent. of a softer Ritter-Kellner cellulose; there was about 70 per cent. of ash. Although the material was beaten very wet we only attained a fracture-length of 3,000 m. instead of the stipulated fracture-length of 4,000 m. Attempts to increase the strength by intensive shaking and increased pressure met with little success. Finally, there was no other alternative but to manufacture the stuff into another kind of paper having a weight of 140 g. per square metre which was accidentally on order. This paper made of exactly the same material had a fracture-length of 4,400 m. The dilation also increased from 3.1 per cent. to 4 per cent. This difference could only have been caused by the change in the weight, because everything

else remained the same. When making the 280 g. paper a second time, we employed, for safety's sake, a much better furnish (25 per cent. linen of firm texture, 65 per cent. Mitscherlich cellulose and 10 per cent. Ritter-Kellner cellulose). Notwithstanding this better material and very wet beating thereof, we attained at the commencement of the manufacture a fracture-length of only 3,800 m. and had difficulty in attaining the stipulated fracture length of 4,000 m. The expenditure of power for the beating was also increased, the paper machine had to work more slowly and the final result was that the profit was completely absorbed.

In another case standard paper 3b was first made with a standard weight of 95 g. per square metre and attained a fracture-length of 3,600 m. A 170 g. paper was then made from the stuff left behind in the vat, the fracture-length having decreased to 2,900 m. Practically the same occurred with the standard paper 4a, which with a standard weight had a fracture-length of 3,800 m., but as a 200 g. paper it underwent a decrease of 500 m., while the number of double folds increased from 100 to 180. In a further case, it was possible to attain with the standard paper 5a with a weight of 200 g. per square metre the stipulated fracture-length of 4,000 m. by very wet beating and very careful working on the paper machine, while with the standard weights, the fracture-length of 4,300—4,500 m. was attainable without any difficulty.

The changes in dilation with a varying thickness of the paper cannot be easily determined with exactitude because the work on the paper machine is of great influence. The folding resistance, however, increases with the increasing thickness of the paper. Now, if an abnormally low weight per square metre is required, which frequently occurs in connection with type writing paper, standard 3a, the attainment of the stipulated folding resistance is in most cases



only possible by considerably more careful beating and machine work.

It may be stated, in general, that there is a certain thickness of paper for every material, at which the maximum fracture-length is attained. The thickness of the paper does not always conform with that officially stipulated, but this was unavoidable because other points were concerned when the standard weights were fixed. These difficulties should nevertheless be taken into consideration when making stipulations for the strength of the paper. This applies especially to "Invalid Cardboard" having a weight of 280 g.; there is hardly a paper which presents similar difficulties with respect to the attainment of the stipulated strength. The furnish used for this cardboard would produce a fracture-length of at least 6,000 m. when manufacturing paper with a standard weight.

The above observations may be explained by the fact that, in the case of thick paper, the intertwining of the fibres cannot be effected so closely and firmly as in the case of thin paper, because with the latter the material can be beaten "slower" and more diluted on the wire. Moreover, the content of ash likewise increases with the increasing thickness of the paper and thereby reduces the fracture-length.

It is obvious that with a decreasing thickness of the paper a point will finally be arrived at where irregularities in the formation of the paper are clearly perceptible and the strength rapidly decreases.

It would be interesting to ascertain whether the difficulties which arise with thick paper with regard to the strength also present themselves when the stuff is manufactured in a cylinder paper-machine having several cylinders.

At all events, it may be advisable in the case of paper of an abnormal weight not to maintain the values of strength which are fixed for paper with a standard weight.

Coming to the question of "substance," the Prussian "normal" specifications for the composition and mechanical resistance of different classes of paper were originally formulated in connection with "normal" specifications of the "substance" or weight per sq. metre for each type. The convenience of the normal strength specifications, however, has proved so great that orders are frequently given for papers conforming with these specifications, but differing very widely from the normal weights. In the case of extreme differences in substance, it is very difficult for the paper-maker to produce, even from the same quality of stuff, papers which con-

(Continued on Page 62.)



The marriage was celebrated in the Parish Church of St. Jerome on the 24th ult. of Mr. A. Rolland, assistant manager of the Northern Mills Co. of St. Adele, son of S. J. B. Rolland of St. Jerome, and Miss Blanche Fournier, daughter of Dr. J. E. Fournier. His Lordship the Archbishop of Montreal officiated, assisted by the Rev. de la Durantaye. After the ceremony a reception was held at the home of the bride's parents, and later Mr. and Mrs. Rolland left for Toronto and Buffalo.

\* \* \*

W. H. Rowley, president and co-manager of the E. B. Eddy Co., Hull, was married a few days ago in Ottawa to Miss Elsie Ritchie, daughter of the late Chief Justice William Ritchie. He was presented by the various branch managers with a handsome Crown Derby dinner and tea service. The Canadian Manufacturers' Association, of which he was until recently the president, also made him a presentation. The married couple are spending a few weeks in the United States.

\* \* \*

We are sorry to hear that James Davy, pulp manufacturer, Thorold, has been ill.



# THE PULP AND PAPER MAGAZINE OF CANADA

Vol. 9—No. 12.

TORONTO, DECEMBER, 1911

Canada, \$1. a Year  
Single Copy, 10c.

## Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade.

**Subscriptions:** Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage, \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required, four days earlier. Cuts should be sent by mail, not by express.

**BIGGAR-WILSON, Ltd.**

**PUBLISHERS.**

**Offices, Confederation Life Building,  
Toronto, Canada.**

The Pulp and Paper Magazine of Canada wishes to all its readers, whether they live in Canada, or the United States or England, or any other part of the world, a Right Merry Christmas and a Happy New Year. May continued prosperity be theirs.



### IMPERIAL PAPER MILLS SALE.

An important happening of the last few days was the sale of the Imperial Paper Mills of Canada, Sturgeon Falls, Ont., to the Dominion Bond Co., of Toronto, Montreal and Ottawa, for the sum of \$900,000. Several times during the past few years, the mills have been offered for sale, but litigation and counter-litigation from one direction or

another, or some other cause, has been in the way of carrying through a deal. The present sale is sanctioned by Chief Justice Mulock and the sum of \$150,000 has already been paid in cash for the Imperial Paper Mills and Northern Sulphite Co. All parties interested were present when the negotiations were amicably closed, including the bondholders and Mr. E. R. C. Clarkson, the assignee, upon whose shoulders during the last four or five years, the weight of responsibility for caring of the mills has largely rested. For the position has been such that, in order to obtain insurance, which by the way, amounted, we believe, to no less than \$10,000 annually, the mills had to be kept running to some extent whether such operation might be profitable or the reverse. The news that the mills at Sturgeon Falls have been sold and will be placed upon the right basis of one of the finest pulp and paper mills properties on the Continent, is highly welcomed by the people of the town, which has been in a stagnant condition during the past four years. In fact, the citizens have organized a monster carnival of rejoicing over the settlement.

While not officially stated in so many words, it is understood that the sale of the Imperial Mills to the Dominion Bond Co. is in line with the same policy by which a controlling interest in the

Spanish River Pulp & Paper Co. at Espanola has been obtained by a syndicate composed of the Dominion Bond Co., C. Meredith & Co., Montreal, and others, indicating that both these important enterprises at Espanola and at Sturgeon Falls will be operated in conjunction, as they are not more than fifty miles apart. The directors and officers of the Spanish River mills include such well-known men as W. J. Shepard, of Waubauskene; John R. Barber, of Georgetown; G. P. Grant, president of the Dominion Bond Co.; also (recently added), A. H. B. Mackenzie, manager for C. Meredith & Co., Montreal, and R. L. Innes, Hamilton, of the Dominion Cannery, Ltd. The company recently made an issue of \$900,000 worth of participating preferred stock, with a 20 per cent. bonus of common, while before that it issued bonds to the amount of \$1,300,000, to pay for extensive additions. As our readers know it is a successful going concern and has made satisfactory earnings. Last year these amounted to about \$208,000, while this year they are estimated at considerably higher than that amount. When the additions now being made are completed, which it is hoped will be within a very few months, the investment represented will be in the neighborhood of \$3,000,000, and a daily output of 130 tons of paper will be made. These additions would have been in operation before, had the company not been handicapped by the failure to secure the steel work on time. The mill already turns out 140 tons of pulp daily.

The Imperial Mills have highly valuable assets in the possession of something like 2,760 square miles of timber

limits. Considerable money will have to be spent in order to take full advantage of the facilities enjoyed. But with the new hope that has now come to the Sturgeon Falls industry, and the alliance with the one at Espanola, there is good reason to believe that a long era of prosperity has set in for pulp and paper enterprises in the northern part of Ontario.



#### THE "FAVORED NATION" TREATIES AND THE UNITED STATES PAPER TRADE.

We have received a copy of a letter on the subject of the "favored nation" treaties, addressed by John Norris, on behalf of the American Newspaper Publishers' Association, to President Taft. In this letter an appeal is made to the president to admit pulp and paper free, as from Canada, when imported from twenty-eight other nations with which the United States has the "favored nation" clause in its commercial treaties. Mr. Norris enumerates these countries as follows:—

Argentine Republic Austria-Hungary, Belgium, Bolivia, Colombia (New Grenada), Costa Rica, Denmark, Hanseatic Republics, Hayti, Honduras, Italy, Japan, Liberia, Mecklenburg-Schwerin, Oldenburg, Paraguay, Prussia, Russia, Sweden and Norway, Tonga, Tripoli, China, Ethiopia (Abyssinia), Great Britain, Greece, Ottoman Empire, Persia, Servia.

It will be seen that the admission of most of these countries to the same conditions that Canada has in the United States markets would not affect the trade of Canada in the slightest as they do not export pulp or paper. As regards Mecklenburg, Oldenburg and Prussia

those treaties have been superseded by the commercial arrangements with the German Empire, whose constituents are now a unit for tariff purposes. Great Britain, Norway, Sweden, Germany and Austria are the only countries to be considered as influencing Canada's relations with the United States in the pulp and paper industry.

The reciprocity act as passed by Congress last July provided that pulp and paper valued at not more than four cents a pound, when made from wood cut off land other than Crown lands, should be admitted to the States free of duty, but so anxious was the government to give the advantage of these free imports to the newspaper interests that this particular clause was made operative without regard to the fate of the reciprocity act in the Canadian Parliament. Consequently, though reciprocity was defeated at the Canadian elections last September free importations of pulp and paper from Canada continued, and now the importers of pulp, acting through an organization known as the American Wood Pulp Importers' Association, with the American Newspaper Publishers' Association, have joined with the representatives of several nations in asking that pulp and paper from other countries as well as Canada shall be admitted free.

As we have pointed out in other articles the United States has invariably recorded its dissent from the British interpretation of the favored nations treaties. The British theory, ever since free trade became the policy of the mother country, is that in making a commercial treaty with a country that country shall not give to a third nation any better trade terms than the two countries in question give to each other. There shall thus be no discrimination. The United States view is that if it buys from one country special concessions by giving

special concessions in return, that is no business of a third country. The British view is that such special concessions are none the less discriminations against the first country because they are exchanged with a third, and this is the broader and fairer ground to take, inasmuch as a nation's trade cannot be increased in proportion to the number of treaties it makes.

However, one point made in Mr. Norris' letter is well taken—that in this case the action by the United States "was taken primarily not to help Canada, but to benefit American consumers and to secure free pulp wood from Canada as the raw material of paper making in the United States," and that as Canada gave no concession in return the law now stands even on the traditional interpretation of the United States authorities as a discrimination against these other countries. We must confess that Mr. Norris' claim on this ground is based upon sound reason, and if it is not upheld by Congress that body will have narrowed rather than widened its conceptions of fair dealing with other nations.

While it seems that the claim of these other countries for equal treatment is sound, the government of the United States is aware that Canada regards the export of raw wood more as a problem of conservation of her vital natural resources than a trade question, and the matter of exports of pulp and paper is tied up with the question of restricting the export of raw wood. Many of those who are studying conservation of the resources of Canada, are even now questioning whether the free entry of Canadian pulp and newsprint to the United States is not bought too dearly at the cost of the ever increasing drain upon the forests of this country involved in the free export of raw forest products.

If the United States Government had re-adjusted its own tariff without attempting to draw Canada into an entangling alliance in the reciprocity treaty, and had shown some consideration to its own pulp and paper industries, by a gradual reduction of duties, it would have escaped its present quandary. It is a question whether even now the restoration of a moderated duty on pulp and paper would not be the most rational solution of a delicate situation.



#### CANADA'S WATER POWERS.

A report prepared by the Conservation Commission shows a total of 1,016,521 horse-power developed from water power in the Dominion. At low water flow Canada's share of the power from Niagara River should total 1,125,000 horse-power, while franchises already granted and partly consummated would use of this 450,000 horse-power, which shows what a large proportion of this enormous and so-called inexhaustible power has already been placed under private control. At the Chaudiere Falls, the minimum power is placed at 95,000 horse-power, while to the Chats Falls, 40 miles up the Ottawa River from the capital, 150,000 horse-power is attributed. The estimated water area within the Dominion is given at 125,755 square miles, compared with 52,630 square miles in the United States. Ontario alone is credited with 40,354 square miles exclusive of the great lakes or any sea. The general tenor of the report is to question the accuracy of the popular imagination based upon general statements as to the enormous and inexhaustible aggre-

gate of waterpower in Canada because of the greatness of the water area. This belief is dangerous inasmuch as it prevents apprehension when so many desirable water rights are alienated to private control on the ground that the supply is unfailing. A few more years of such generosity as has distinguished governments in the past and we will begin to see that "inexhaustible" is but a very comparative term after all.



#### EXAGGERATED TIMBER ESTIMATES.

An interview with an engineer given recently in a western paper to the effect that there is abundant timber on the line of the Hudson Bay Railway, is an illustration of the misapprehension in regard to this matter that exists in the public mind. Because there are large areas of land in the north on which there is timber of some kind, the conclusion is reached that it is all of present value and that the country has an unlimited supply. As a matter of fact, a careful inspection of the timber along the line of the Hudson Bay Railway, made in the years 1910 and 1911 by the Forestry Branch of the Department of the Interior, shows that there is not enough mature timber along the line of that railway to build the road. There are no prairie districts of any extent along the route, there are trees everywhere, but owing to repeated fires the forest is, except on the merest fraction of the area, too small for commercial purposes, and unless it can be protected from fire until it reaches maturity, will never be of any use to the country. Explorations in other parts of



the northern forested districts tell the same tale. Everywhere fire has worked havoc, and the forest is a mere wreck of what it might have been if fires could be prevented. And unless adequate measures are taken now to protect the young and immature forests which form the major part of the stand, the outlook for the future is none too good.

If the northern forests are to continue to be a permanent source of wealth to the country, it is absolutely necessary that the fire ranging system should be extended and that proper methods of management of the forest should be applied, and public education to the value of the forest is even more necessary.

Sweden, which has large areas of northern forest, practically uninhabited, similar to those in northern Canada, has about eliminated the fire danger in such districts mainly by educating her people to the value of the forests. Canada must learn a similar lesson.



The Pulp and Paper Magazine is favored by John Norris, chairman of the paper committee of the American Newspaper Publishers' Association, with some comments on the editorial of last month on the favored nations treaties as they affect the pulp and paper clauses of the late reciprocity treaty. Mr. Norris says that the imports of news print from Canada to the United States for September were not 6,000 tons as stated in our article on "Market Conditions," but 4,036 tons, according to the United States official returns. Our information was derived from a Washington letter

appearing in a United States paper, but we find that Mr. Norris' statement is correct. Mr. Norris questions the prices of ground wood quoted in our article and says the average price of free ground wood pulp is not \$24 a ton but \$17 per ton for "free" ground wood and \$16.60 for dutiable. Our article, however, referred to the cost of pulp laid down at United States mills, whereas Mr. Norris is speaking of the prices in Canada. We have seen invoices of several thousands of tons of recent shipments in which the lowest prices for Canadian ground wood laid down at mills in the Eastern States were \$23 a ton, and as a matter of fact some Canadian mills have themselves bought ground wood which has cost them \$22, with a freight rate of only four cents.



Another rumor reaches us to the effect that Premier Gouin of Quebec, is contemplating a change in the pulpwood policy of the province by which the embargo would be lifted each year from a quantity of Crown land pulpwood corresponding to the amount of paper, or of paper and pulp, exported from the province. In advance of a specific statement of policy it would be unfair to criticize, but judging the premier by his past record and by the public endorsement of his present policy, he is not likely to weaken on the conservation principle which the people expect all governments to strictly adhere to.



The steamer Raleigh, loaded with pulpwood from Quebec to Erie, went ashore at Point Abeno, about seven miles east of Port Colborne.

## Pulp and Paper News

W. H. Rowley, president of the E. B. Eddy Co., Hull, has returned with his bride from a trip to the Southern States.

\* \* \*

P. De W. Reed, late of the Howard Smith Paper Co., Montreal, has been appointed manager of the Wm. Caldwell Paper Co., Montreal.

\* \* \*

Geo. H. Millen, joint manager of the E. B. Eddy Co., Hull, was requested by many citizens to become a candidate for the mayoralty, but declined on the ground of pressure of private business.

\* \* \*

Word comes from the upper St. Maurice of the drowning of four men last month, contractors for the Wayagamack Pulp & Paper Co., who had gone up on the Flamand, one of the tributaries of the St. Maurice.

\* \* \*

The Barber-Ellis Co. will build a new envelope factory in Brantford, with a daily capacity of 1,000,000 envelopes, and will abandon its old building. It has been granted a fixed assessment of \$5,000,000.

\* \* \*

It is stated that the New York and Pennsylvania Pulp & Paper Co., of Johnsonburg, Pa., whose intentions with regard to establishing a soda mill in Canada have already been referred to, will locate in Cobalt district.

\* \* \*

Thorold is the proposed location of still another paper mill, this time for the production of tissue. Report states the expenditure will be \$200,000, but we have been unable to learn the proposed new company's personnel or plans.

\* \* \*

A London cable says the Swanson Bay Forests, Wood & Pulp Lumber Mills, Limited, propose to default the 6 per cent. first mortgage bonds, issued

in July last year. The company's offices are in Montreal. The bondholders meet in London on the 29th inst.

\* \* \*

The Patterson Mfg. Co.'s factory in Toronto, filled with tar paper and roofing, was damaged by fire which spread very quickly, owing to the inflammable nature of the contents. The loss was about \$2,000, partly covered by insurance.

\* \* \*

The secretary of the Yorkton Board of Trade states, among the openings for new industries at that place, one for a paper mill. Yorkton is in Saskatchewan, on the main line between Winnipeg and Edmonton. The G.T.R. also have a branch line to Yorkton from Regina.

\* \* \*

The Pigeon River Lumber Co. has brought an appeal against judgment in case brought against it by British North American Mining Co., under which it was declared that 2,129 cords of pulpwood were cut from land of plaintiff and are property of same.

\* \* \*

In last issue a news paragraph stated that a 175 horse-power Goldie & McCulloch boiler had been installed in Wm. Barber & Brothers' paper mills at Georgetown, Ont. This was in error, as the addition of the new boiler was made by the Toronto Paper Co., Ltd., in Cornwall.

\* \* \*

E. W. Bonfield, vice-president of the Dryden Timber and Power Co., Dryden, Ont., and J. B. Beveridge, manager of the pulp mill, have recently returned from Toronto, where they distributed orders for the bulk of the machinery to be installed at the new mill. J. C. Armstrong is now installing the power plant.

The Ontario Government authorizes the Spanish River Pulp and Paper Co., Ltd., to distribute pro rata among its shareholders 7,855 shares of preference stock and 7,855 shares of common stock of the Spanish River Pulp and Paper Mills, Ltd., and to reduce the capital stock (including unissued shares) to \$78,550.

\* \* \*

A company is being organized under the name of the Roberval Paper Co., Ltd.; capital stock \$1,500,000 common, and \$1,500,000 preferred, to acquire timber limits on Ouïatchouan River. A. Du Tremblay, of Roberval, Que., will be president and manager. That municipality has granted a bonus of \$10,000 and exemption for taxes for 15 years.

\* \* \*

The recent death of David S. Cowles, late president of the Pejepscot Paper Co., will not affect the Canadian interests of that company, and a new mill will likely be built at St Martin's, N.B. Charles P. Cowles, brother of the late president, has been on a trip of inspection to the property in New Brunswick. The new president is Justus Cowles, of New York.

\* \* \*

The E. B. Eddy Co., Hull, is making plans for extensive improvements in its power plant at Chaudiere Falls, by which its supply of power will be doubled with the same quantity of water, which at several periods during the last two or three years has been too low for the company's requirements. Another thing which will help the Hull and Ottawa manufacturers is the proposal of the Ontario Government to build a dam at Round Lake on Bonnechere River, which empties into the Ottawa River.

\* \* \*

The collapse and blowing out of one of the huge penstocks in the Powell River B.C. Pulp and Paper Co.'s plant, which prevented the beginning of oper-

ations in paper-making, timed for the following day, has led the management to have all the wood penstocks of the 35,000 horsepower hydro-electric plant torn down and replaced by heavy steel. The output of this plant with its two machines will be 100 tons of paper daily, which it is intended to double as soon as conditions warrant.

\* \* \*

It is understood that the report of the representatives of Sir John Milbanke of England, who last month investigated into the conditions of the Miramichi Pulp & Paper Co., Ltd., Chatham, N.B., and of the J. B. Snowball Co.'s property adjoining, was very favorable, especially in view of a possible merging of the two industries. The Miramichi mill is in the hands of W. Dick, permanent liquidator, who is acting on behalf of the Bank of Montreal.

\* \* \*

The Brompton Pulp & Paper Co. is bringing action in the Quebec Superior Court at Sherbrooke against the Great Northern Lumber Co., to set aside a contract made originally between the estate of the late Cyrus Clarke and the Scotstown Mill Co., in which the latter were given the right to cut timber in the township of Ditton and Hatton under license held by Clarke upon payment of double stumpage. Plaintiffs acquired the rights of Clarke and claim that owing to the failure of the Northern Company to cut under the license and to pay the amount due under the agreement, the work should be set aside.

\* \* \*

H. A. Maclean, K.C., appeared before the Dominion Railway Commission on behalf of the province of British Columbia, to urge the systematic patrol of the railways, to guard against the starting of forest fires through sparks from railway locomotives. The percentage of fires in that province arising from that cause is large, owing to the length of the dry season in many parts. In parts

of Ontario, the experiment has been made, and successfully, of supplying fire wardens for the purpose of following up the trains and extinguishing fires in their initial stages.

\* \* \*

The Laurentide Paper Co. have just increased the dividend from 6 to 8 per cent., or what is equivalent to 16 per cent. on the old capitalization. The company, it will be remembered, doubled its capitalization, the new stock being given to shareholders in the proportion of one new share for each old share outstanding. As the old stock was on an annual dividend basis of 8 per cent., the dividend on the old basis of capitalization has been increased from 8 per cent. to 16 per cent. Mr. S. A. Sabbaton, assistant manager of the company, has been elected director in place of the late Charles F. Smith.

\* \* \*

The case of Davey vs. Foley-Rieger Pulp Co., Thorold, came up in the court of appeal. The plaintiff's action was for damages and an injunction restraining defendants from discharging into the tail-race of plaintiff's mill a volume of water much greater than was formerly discharged therein by defendant's predecessors in title, and for damages for trespass in entering upon the land which plaintiff alleges is his, and breaking down the stone wall which had been erected and maintained by plaintiff there for over 25 years. The trial judge dismissed the action with costs, the divisional court varying that judgment by holding that the title to the tail-race was vested in defendants, that the defendants were entitled to break the wall in question, but that plaintiff was entitled to an easement acquired by prescription in the tail-race, and that defendants were only entitled to discharge into the tail-race 100 horsepower of water, but that the defendants had the right to enlarge the tail-race to such

an extent as would enable the increased discharge needed by them. Judgment reserved.



—Mr. Frank Lloyd, head of the great paper-making firm of Edward Lloyd, Ltd., London and Sittingbourne, Eng., was tendered a unique complimentary luncheon by his competitors for his active and successful fight in the courts against the European Eibel Patents, Ltd., who contended that they alone held the right to elevate the wires on paper machines in the way now generally adopted on fast running news machines. The address was signed by leading paper men, not only in England, but in Sweden and other countries, showing the importance in their eyes of the long and expensive fight in which Mr. Lloyd had so public-spiritedly engaged.

—Becker & Co., Ltd., and F. E. R. Becker, importers of pulp, London, Eng., brought an action against a rival pulp firm for malicious libel contained in a letter to the effect that plaintiffs had engaged in speculation which was forbidden in the pulp trade, and the circulation of which would prejudice their customers against the firm. The statement had already been circulated in a Swedish newspaper, but had been withdrawn. Mr. Becker stated that his firm were the agents of manufacturers of 400,000 tons per annum in Canada, Norway and Sweden. Verdict for the plaintiffs with £250 damages.

—The copyright bill has passed the third reading in the British House of Lords. Under the new bill introduced in the House of Commons by Right Hon. Sydney Buxton, copyright is to exist during the life of the author and for fifty years after his death. Copyright covers lectures, dramatization of novels, musical, artistic and literary works. The passage of the bill evoked much criticism, and some amendments were added to the original measure.



**NEW INCORPORATIONS.**

Mountjoy Lumber Co., Ltd., Toronto; capital, \$100,000. To deal in pulpwood and other forest products. J. B. Halden, J. B. Grover, Toronto.

Rothsay Lumber Co., Que.; capital, \$20,000. To manufacture pulpwood and other lumber. T. Rinfret, Robt. Taschereau.

Theo. A. Burrow Lumber Co., Winnipeg; capital, \$500,000. To carry on a lumber and pulpwood business. F. W. Louthood, accountant, Winnipeg.

The Dominion Waste Manufacturing Co., Ltd., Toronto; capital, \$50,000. To manufacture and deal in waste. J. G. Taylor and J. A. Scythes of Toronto.

Canadian Fibre Wood and Manufacturing Co., Toronto; capital, \$40,000. To operate lumber, pulp and paper mills. B. Balfour and W. Burrows, Toronto.

Phoenix Lumber Co., Ltd., Transcona, Man.; capital, \$20,000. To acquire and operate sawmills, pulp mills, etc. Alfred E. Smith and Edgar J. Tarr, of Winnipeg.

Chaleur Bay Lumber Co., Ltd., Port Daniel, Que.; capital, \$200,000. To carry on a lumbering and wood pulp business. P. O. Viall and C. R. Taylor, of Port Daniel, Que.; L. D. Crear, C.E., of Rutherford, N.J., and J. C. McDermott, of Wellington, O.

The Publishers' Association of Canada, Ltd., incorporated under Dominion laws, is licensed by Ontario Government to carry on business in that province with a capital of \$40,000. R. P. Glasgow, of Toronto.

Miln-Bingham Printing Co., Toronto; capital, \$100,000. To manufacture stationery and blank books and conduct a publishing and printing business. Jas., John and Alex. Miln and W. J. Whittard, Toronto.

Horn-Baker-Smith Advertising Co., Ltd., Winnipeg; capital, \$50,000. To

do business as stationers, printers, dealers in paper, envelopes, blank books, etc. J. H. Baker, R. C. Macpherson and J. H. Rodfont, Winnipeg.

New Brunswick Pulp and Paper Co., Ltd., incorporated under New Brunswick laws, is licensed by Ontario Government to do business as pulp and paper makers, etc., in that province with a capital not exceeding \$40,000. E. N. Armour, Toronto.

St. John Valley Construction Co., Ltd., Woodstock, N.B.; capital, \$49,000. To acquire, operate and deal in timber and pulp concessions, carry on lumbering, etc. B. Franklin Smith, of Peel, N.B., H. Colby Smith, St. John, N.B., Geo. McPhail, of Woodstock, N.B.

North Shore Contracting Co., Ltd., Sault Ste. Marie, Ont.; capital, \$500,000. To acquire, construct and operate pulp and paper mills, manufacture and deal in pulp and paper, etc. H. E. Talbott and G. H. Mead, of Dayton, O., and Speed Warren, of Sault Ste. Marie, Ont.

The Corrugated Paper Co., Ltd., Toronto; capital, \$40,000. To take over the business and effects of the Corrugated Paper Co., Toronto, and to manufacture and deal in paper, corrugated paper and paper boxes and to manufacture machinery and carry on business as manufacturing stationers, printers, paper-makers, etc. Names mentioned are E. W. J. Owens, W. A. Proudfoot, and H. J. D. Cooke, barristers.

**British Columbia Companies.**

Alberta-British Columbia Lumber Co., Cranbrook, B.C.; capital, \$50,000. To manufacture lumber and pulpwood.

J. Hanbury Co., Ltd., Vancouver. capital, \$1,250,000. To operate pulp and paper mills, etc.

The Rennell Sound Development Co., Ltd., 1106 Dominion Trust Building, Vancouver. To construct and operate paper and pulp mills, etc.

Jenckes Machine Co., Ltd., Sherbrooke, Que.; capital, \$1,000,000. Office in Vancouver, 1048 Main St. Archd. S. MacDonald, representative.

Red Cliff Land and Lumber Co., Ltd., Vancouver; capital, \$400,000. To acquire limits, booms, etc., for care of sawlogs, pulpwood, etc.

Heaps Engineering Co., Ltd., Vancouver; capital, \$500,000. To carry on business as foresters, lumber merchants, make and deal in all articles made of pulp or paper, including cardboard, etc.

The A. L. Clark Investment Co., Ltd., New Westminster; capital, \$100,000. To take over the business of A. L. Clark and carry on business as timber merchants, saw mill and pulp mill owners, make paper, etc.

Hotel Red Book Co., Ltd.; capital, \$25,000. To take over the business now carried on by D. A. Macdonald, 901 Dominion Trust Building, Vancouver, and purchase and publish books, magazines, and other printed matter and stationery.



#### LITERARY NOTES.

A book having on its title page the name of Fred. W. Field, or the Monetary Times, will command attention from the business men of two countries at least, and we are not surprised to learn that the first edition of "Capital Investments in Canada," a volume of 240 pages, by Mr. Field, is practically exhausted. This is the first attempt made to gather into one volume any trustworthy data concerning British and foreign investments in Canada. In addition to sketches of the development of British, American, French, German, Belgian, and other foreign investments of capital in Canada, in the various forms of government, municipal, railway, land, mineral and industrial stocks and bonds, an account is given of Canadian securities and investments as de-

veloped in recent years, and there are interesting and intelligent discussions of such questions as Canadian credit in general, the banking system, the relation of trade to borrowed money, capital in relation to immigration, international finance, etc. It appears from Mr. Field's figures that in a little over six years Great Britain has placed over \$830,000,000 in Canada in loans and industrial investments, the United States over \$417,000,000, France \$70,000,000, Germany \$30,000,000, Belgium and Holland each \$11,000,000, and other countries about \$10,000,000, so that many countries are now strongly interested in Canada's prosperity and it should be the care of our financiers and politicians to keep the credit of the country sound. The Monetary Times of Toronto are publishers of Mr. Field's instructive book.

\* \* \*

There is a common impression that there is money in the manufacture of paper and the ownership of timber lands from whose products paper is made. There would be money in paper-making if cardboard and cartridge paper could commonly take on the value given to it by the fiat of the early administrators of Canada who devised the expedient of "card-money" as a circulating medium. A most interesting monograph on this subject has been published by R. W. McLachlan, of Montreal, curator of the Chateau Ramezay Museum, and the best informed writer in this country on the early coins and tokens of Canada. In this investigation Mr. McLachlan makes what appears to be an important discovery in the history of finance, and that is that a French-Canadian official was the inventor of the modern system of paper money, and that the colony of Massachusetts, which has been credited with being the pioneer in the issue of paper money, really borrowed the idea from Canada, where it was issued five years before the first Massachusetts card money. This money was issued

on cards at Quebec in 1685, by Jacques de Meulles, who in a letter discovered recently in the archives of France, styled himself "Seigneur de la Source, Conseiller du Ray en son, Consul, Intendant de la Justice, Police et Finance en Canada et pays de la Nouvelle France." He succeeded Duchesneau who had been recalled on account of his intrigues against Frontenac. The Intendant was then an official who combined in one man the functions of chief justice, superintendent of police and finance minister, and the card money in question, of which Mr. McLachlan reproduces samples, was a device used as "emergency money" to pay the troops raised to fight the Iroquois at a time when they threatened the French dominions in the new world with utter extinction. It served an excellent purpose at the time, but its subsequent abuse by Intendants in later times and especially by the notorious Bigot, wrought much misery and had an influence in reconciling the French-Canadian people to the sounder financing of British administration.

\* \* \*

Constable & Co., Ltd., Leicester Square, London, Eng., are publishing a series of popular books on industrial and scientific subjects, of which a volume just issued under the title, "Wood Pulp and Its Uses," will interest many of our readers. It is a book of 270 pages with a number of illustrations and is published at six shillings net. It is the joint compilation of Messrs. Cross, Bevan, Sindall and Bacon. It does not claim to be a text book in the technical sense, but is designed to give "a general idea" of the processes of pulp manufacturing to an increasing number of people who are interested in the industry, but have not had the opportunity of studying the business in the mills. For these it is well suited and the price is moderate. There are chapters on the structural elements of cellulose and its chemical properties,

with magnified specimens illustrated, notes on the processes of manufacture, and the sources of various raw materials, a chapter on news and printing papers, one on pulp boards, on wood waste, on testing for moisture in wood pulp, etc. One useful feature to the learner is a series of 11 sheets inserted as actual samples of the different classes of paper such as news, printing, book, litho and other kinds, these samples being, of course, of British make.

\* \* \*

"The Old Welland Canal and the Man Who Made It," is the title of a pamphlet by Thos. C. Keefer, C.M.G., past president of the Canadian Society of Civil Engineers, and of the Royal Society of Canada, which contains a budget of little known facts connected with a canal which was in its day of newness one of the wonders of the western world. It was built through the determined advocacy of Hon. Wm. Hamilton Merritt, whose name survives in Merritton, and Mr. Keefer well says that if ever an important public work was the work of one man, it could be said that the Welland Canal was the product of Merritt. He was in addition one of the heroes of the war of 1812 and Mr. Keefer gives some graphic touches of the exploits of Merritt's mounted troops, made up of men organized around Niagara. We sincerely hope Mr. Keefer's suggestion that our government should build a monument somewhere on the canal to the memory of the man who was one of the real makers of Canada may be duly considered. This valuable contribution to Canadian history is published by James Hope & Sons, Ottawa.

\* \* \*

We welcome to the arena of Canadian literature and journalism, Dr. Frank B. Vrooman, F.R.G.S., who has just purchased the British Columbia Magazine, and has taken up his residence at Vancouver. Dr. Vrooman is the author of "The New Politics," an appeal to the

nobler instincts of the Anglo-Saxon peoples which every Canadian should read, and he has made without a blast of trumpets, a remarkable exploratory tour of three or four years, through untraveled regions of the Peace River district, the record of which we hope to see in print. Dr. Vrooman is a distinguished member of a family of men remarkable for their mental endowments, one brother being the late Walter Vrooman, founder of Ruskin College, Oxford, another being Carl S. Vrooman, author of "American Railway Problems," a subject of deep interest to the people of this country, as well as of the United States, and a third the Rev. Hiram Vrooman, author of "Religion Rationalized."



#### HOME MARKET CLUB AGAINST FREE PAPER.

At its meeting last month in Boston, the Home Market Club went on record as against the free importation of wood pulp and print paper from Canada, and the possibility of the extension of this policy to other pulp and paper exporting countries. The resolution, which was adopted unanimously, was as follows.

"Whereas, wood pulp and print paper have been placed on the free list so far as Canada is concerned, notwithstanding that the extended concessions on the part of Canada have been denied us, and whereas demands are now being made under the favored nation clause by all paper exporting countries for the same tariff privileges which have been extended to Canada:

"Be it resolved, that we protest against this unjust treatment of American paper manufacturers and respectfully petition Congress to repeal this legislation."

Secretary Marvin, after the adoption of the resolution, pointed out that in 1906 and 1907, the paper producing countries of Europe, held by Norway, Germany,

the Netherlands, Austria and Great Britain, had a surplus for export amounting to \$337,127,000, or nearly twice as large as the entire paper and wood pulp production of the United States.



#### MONTREAL PULP AND PAPER MATTERS.

(Special to Pulp and Paper Magazine.)

Montreal, Dec. 7, 1911.

While lumbermen everywhere in Canada seem to have been complaining about the bad year's business, and while it would seem that a number of them lost money on the year's operations and none of them made any considerable profit so far as known, the exact opposite has been the result in the pulp and pulpwood industry. This was more especially manifested in the issue of 100 per cent. bonus stock in the Laurentide Company and subsequently in the raising of the dividend once more to 8 per cent., being the equivalent of 16 per cent. on the old capital stock.

#### Strong Trade Situation.

The general strength of the whole pulp and lumber situation is also shown in the fact that the J. R. Booth Company of Ottawa refused an offer of \$13,000,000 as the purchase price of their property. This offer was made by an English syndicate, and it is believed that Sir Max Aitken, who about a year ago captured a seat for the Conservative party in the British House of Commons, was at the head of the scheme. That such an offer was made, is admitted by a member of the Booth firm, who also added that it had been refused. The price included the good-will of the business controlled by the company, the Chaudiere Falls waterpower, the timber limits and all the assets of the firm.

(Continued on Page 445.)



## Pulp and Newsprint in the United States and Canada

From the Report of the United States Tariff Board on Costs of Production

(Continued from last issue)

Table 25 shows itemized cost for a much larger number of ground wood pulp mills for a series of years. The items for 1900 could not be satisfactorily secured, and hence are omitted for that year. Itemized costs per ton of ground wood pulp are given from 1901 to 1909, inclusive. Here, again, the variations relate almost entirely to the cost of wood, and the increase in wood cost almost exactly equals the advance in total cost. As a matter of fact labor

composite one; that is, the figures are the average for a number of mills, the same plants being used each year. The cost of material will be seen here, too, as the varying element, labor costs changing little. To the cost of manufacture here has been added the cost of marketing and the margin, which must not be confused with profit, as margin here means simply the amount per ton left with which to pay interest, depreciation and profits.

TABLE 25.—Itemized cost of production of ground wood pulp, by years, 1901-1909.

Items.	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
Material, wood.....	\$6.48	\$6.96	\$7.09	\$7.41	\$8.38	\$8.78	\$9.08	\$9.50	\$11.14	\$11.82
Conversion:										
Manufacturing labor.....		2.45	2.37	2.57	2.53	2.46	2.46	2.55	2.64	2.34
Pulp stones.....		.14	.12	.11	.10	.09	.10	.11	.11	.10
Felts.....		.16	.12	.11	.11	.12	.14	.13	.10	.09
Wires.....				.01	.03	.03	.03	.04	.04	.04
Screen plates.....		.08	.05	.06	.06	.07	.07	.05	.05	.06
Beltting.....		.10	.07	.07	.07	.06	.06	.07	.07	.06
Lubricants.....		.05	.04	.03	.04	.04	.04	.04	.04	.04
Repair materials.....		.56	.49	.49	.61	.56	.62	.77	.88	.59
Repair labor.....		.37	.29	.32	.36	.30	.29	.32	.41	.43
Fuel, coal.....		.02	.01		.04	.02	.01	.02	.04	.03
Barn.....				.03	.04	.03	.03	.02	.03	.02
Miscellaneous operating expenses.....		.11	.10	.04	.05	.06	.07	.07	.16	.24
Office.....				.01	.01	.02	.02	.02	.02	.02
Water power.....		.38	.34	.37	.36	.36	.37	.40	.60	.45
Total.....	4.15	4.42	4.01	4.25	4.47	4.21	4.31	4.60	5.19	4.51
Direct cost.....	10.63	11.38	11.10	11.66	12.85	12.98	13.39	14.10	16.34	16.33
Fixed charges:										
Insurance and taxes.....		.04	.03	.05	.07	.17	.17	.15	.32	.25
General expense.....		.09	.08	.10	.11	.08	.08	.09		
Total.....	.21	.13	.12	.15	.19	.25	.25	.25	.22	.25
Total manufacturing cost.....	10.84	11.51	11.22	11.81	13.04	13.23	13.64	14.35	16.56	16.58

conditions had radically changed in most of these pulp mills; wages had been increased, reduced, and increased again; hours of labor had been radically reduced, and yet manufacturing labor costs were lower at the end of the period (1909) than in the beginning (1901).

Below will be found a table, No. 26, itemizing the cost of production for news print paper per ton, by years, from 1900 to 1909, inclusive. The picture here is a

Continuing the discussion of costs over a series of years, table 29 presents the cost per 100 pounds of paper, in cents and fractions of cents, over a period of seven years, or from 1903 to 1909, inclusive:

Table 31 represents the itemized costs per ton of paper, in a so-called "balanced plant," i.e., one making its own pulp, both sulphite and ground wood. The wood costs at this

TABLE 26.—*Cost of production per ton of news-print paper, itemized, and by years from 1900 to 1909, inclusive.*

Items.	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
<b>Material:</b>										
Ground wood.....	\$9.54	\$10.00	\$9.41	\$10.24	\$11.56	\$11.08	\$11.49	\$12.22	\$13.33	\$12.92
Sulphite.....	8.50	9.02	8.32	8.44	9.34	8.53	8.25	9.05	10.26	10.15
Wrappers.....	.52	.76	.70	.66	.70	.63	.60	.56	.63	.61
Fillers.....	.66	.67	.57	.46	.46	.49	.49	.37	.34	.35
Alum.....	.24	.27	.27	.27	.25	.23	.21	.19	.21	.19
Bleach chemicals.....	.12	.10	.05	.03	.03	.02	.02	.01	.01	.01
Color.....	.10	.10	.11	.12	.13	.15	.16	.16	.14	.14
Sizing.....	.16	.15	.15	.15	.16	.20	.17	.16	.14	.18
<b>Total.....</b>	<b>19.84</b>	<b>21.07</b>	<b>19.58</b>	<b>20.37</b>	<b>22.63</b>	<b>21.34</b>	<b>21.38</b>	<b>22.71</b>	<b>25.05</b>	<b>24.55</b>
<b>Conversion:</b>										
Manufacturing labor.....	3.80	4.00	4.11	4.15	3.94	3.83	3.80	4.19	4.35	3.73
Felts.....	.57	.63	.61	.56	.64	.72	.76	.83	.91	.81
Wires.....	.44	.45	.38	.31	.32	.32	.33	.32	.34	.33
Screen plates.....	.04	.04	.03	.02	.03	.02	.02	.03	.02	.02
Belting.....	.14	.15	.13	.12	.12	.11	.10	.11	.13	.12
Lubricants.....	.07	.07	.06	.06	.06	.06	.07	.08	.08	.08
Finishing material.....	.52	.44	.41	.42	.45	.44	.45	.35	.37	.36
Repair material.....	.88	.85	.91	.75	.89	.94	1.01	1.09	.99	1.02
Repair labor.....	.45	.62	.58	.59	.59	.55	.49	.53	.70	.65
Fuel coal.....	2.19	2.30	2.34	2.60	2.34	2.22	2.17	2.23	2.29	2.03
Barn.....									.03	.02
Miscellaneous operating expenses.....	.18	.15	.13	.09	.09	.10	.08	.09	.14	.08
Office.....				.03	.03	.03	.03	.02	.03	.03
Water rents.....	.17	.18	.16	.15	.13	.13	.12	.11	.16	.11
<b>Total.....</b>	<b>9.41</b>	<b>9.88</b>	<b>9.84</b>	<b>9.85</b>	<b>9.65</b>	<b>9.46</b>	<b>9.42</b>	<b>9.96</b>	<b>10.54</b>	<b>9.40</b>
<b>Direct cost.....</b>	<b>29.28</b>	<b>30.95</b>	<b>29.42</b>	<b>30.22</b>	<b>32.28</b>	<b>30.80</b>	<b>30.80</b>	<b>32.67</b>	<b>35.59</b>	<b>33.95</b>
<b>Insurance and taxes.....</b>	<b>.42</b>	<b>.46</b>	<b>.44</b>	<b>.46</b>	<b>.43</b>	<b>.30</b>	<b>.28</b>	<b>.31</b>	<b>.51</b>	<b>.34</b>
<b>Administration.....</b>	<b>.96</b>	<b>1.02</b>	<b>1.26</b>	<b>1.42</b>	<b>1.48</b>	<b>.94</b>	<b>.86</b>	<b>.85</b>	<b>1.25</b>	<b>.91</b>
<b>Manufacturing total.....</b>	<b>30.66</b>	<b>32.43</b>	<b>31.12</b>	<b>32.10</b>	<b>34.19</b>	<b>32.04</b>	<b>31.94</b>	<b>33.83</b>	<b>37.35</b>	<b>35.20</b>
<b>Marketing:</b>										
Freight, cartage, and storage.....	3.40	3.36	3.54	3.68	3.87	3.70	3.89	3.67	3.91	3.89
Sales division expenses.....	.40	.40	.38	.24	.24	.23	.21	.19	.28	.20
Settlement charges.....	2.40	2.54	1.94	1.54	.91	.95	.70	.51	.45	.29
<b>Total.....</b>	<b>6.20</b>	<b>6.30</b>	<b>5.86</b>	<b>5.46</b>	<b>5.02</b>	<b>4.89</b>	<b>4.81</b>	<b>4.37</b>	<b>4.64</b>	<b>4.37</b>
<b>Total cost delivered.....</b>	<b>36.86</b>	<b>38.73</b>	<b>36.98</b>	<b>37.56</b>	<b>39.21</b>	<b>36.93</b>	<b>36.75</b>	<b>38.20</b>	<b>41.99</b>	<b>39.57</b>

TABLE 29.—*Comparative cost of manufacturing paper.*

[Cost per 100 pounds.]

Items.	1903	1904	1905	1906	1907	1908	1909
Ground wood.....	\$0.549	\$0.460	\$0.487	\$0.629	\$0.775	\$0.768	\$0.687
Sulphite.....	.336	.363	.409	.443	.432	.382	.392
Fuel.....	.084	.076	.066	.086	.109	.095	.073
Felts.....	.034	.031	.028	.029	.033	.028	.029
Wires.....	.026	.019	.017	.015	.018	.012	.016
Alum.....	.018	.014	.014	.014	.015	.015	.013
Clay.....	.017	.013	.013	.012	.013	.017	.023
Size.....	.013	.015	.022	.021	.016	.024	.027
Oil and light.....	.007	.008	.007	.007	.007	.005	.004
Belt.....	.007	.009	.006	.004	.005	.005	.003
Color.....	.005	.007	.009	.009	.010	.009	.008
Labor and salary.....	.323	.279	.256	.247	.261	.272	.253
Power rental.....			.014	.013	.014	.014	.012
Repairs.....	.063	.088	.056	.080	.118	.072	.077
Team.....	.009	.009	.008	.006	.009	.010	.007
Finishing.....	.053	.056	.051	.041	.046	.052	.043
Expenses.....	.014	.022	.031	.020	.032	.034	.035
Insurance.....	.021	.022	.017	.010	.014	.011	.012
Taxes.....	.008	.010	.013	.014	.018	.015	.023
	1.587	1.501	1.524	1.700	1.945	1.840	1.737

plant are high; pulps made at the mill are charged into paper, not at a profit but at actual cost of production. Owing to low water, the plant bought some ground wood pulp in 1908 and 1909 (perhaps to a lesser degree in other years). These purchases, of course, represent some profits. The figures are unrevised and are given as kept by the manufacturer. Attention is here called

Pulpwood prices control ground wood pulp costs of course, but this is not the only element of control. For instance, in the following table the costs per ton of ground wood pulp are shown in connection with inches of rainfall for five years, showing the influence of rainfall on labor cost per ton. Of course, the reason for this is decreased output owing to lack of waterpower, without a

**TABLE 31.—Cost of specified items in the manufacture of news-print paper, per ton of paper produced, in a "balanced plant" for given years.**

Items.	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
<b>Material:</b>										
Ground wood.....	\$8.91	\$10.15	\$9.35	\$10.89	\$11.04	\$9.49	\$9.61	\$10.83	\$13.15	\$14.27
Sulphite.....	7.26	7.50	6.64	6.31	7.59	7.28	7.05	6.66	7.46	7.36
Wrappers.....	.52	.65	.58	.52	.46	.50	.46	.59	.74	.63
Fillers.....	1.09	1.20	.87	.49	.60	.62	.44	.38	.36	.39
Alum.....	.20	.27	.26	.25	.26	.22	.18	.15	.14	.10
Bleach chemicals.....	.01									
Color.....	.07	.06	.08	.09	.09	.11	.12	.10	.11	.10
Sizing.....	.08	.08	.07	.08	.11	.06	.04			
<b>Total.....</b>	<b>18.14</b>	<b>19.91</b>	<b>17.85</b>	<b>18.62</b>	<b>20.15</b>	<b>18.28</b>	<b>17.91</b>	<b>18.72</b>	<b>21.95</b>	<b>22.85</b>
<b>Conversion:</b>										
Manufacturing labor.....	3.53	3.79	4.08	4.40	3.81	3.58	3.54	3.43	3.33	2.86
Felts.....	.69	.74	.70	.75	.71	.76	.79	.91	.98	.95
Wires.....	.60	.58	.47	.39	.37	.37	.37	.33	.40	.44
Screen plates.....	.01	.02	.03	.02	.01	.01	.01	.03	.01	.02
Belting.....	.22	.24	.18	.17	.13	.13	.11	.09	.15	.11
Lubricants.....	.06	.07	.08	.07	.07	.07	.11	.11	.10	.08
Finishing material.....	.41	.54	.55	.61	.47	.82	.84	.37	.44	.29
Repair material.....	1.45	1.01	1.05	.87	.73	.80	.84	.75	1.25	1.02
Repair labor.....	.41	.68	.49	.53	.58	.63	.56	.52	.94	.60
Fuel, coal.....	2.02	2.31	2.89	2.62	2.42	2.18	1.89	1.83	1.72	1.48
Barn.....				.05	.03	.04	.05	.02	.03	.02
Miscellaneous operating expenses.....	.14	.14	.09	.07	.05	.10	.09	.07	.13	.05
Office.....				.01	.02	.02	.02	.01	.01	.01
<b>Total.....</b>	<b>9.54</b>	<b>10.12</b>	<b>10.61</b>	<b>10.58</b>	<b>9.40</b>	<b>9.51</b>	<b>9.04</b>	<b>8.52</b>	<b>9.49</b>	<b>7.94</b>
<b>Direct cost.....</b>	<b>27.68</b>	<b>30.03</b>	<b>28.46</b>	<b>29.20</b>	<b>29.55</b>	<b>27.79</b>	<b>26.95</b>	<b>27.24</b>	<b>31.44</b>	<b>30.79</b>
<b>Insurance and taxes.....</b>	<b>.56</b>	<b>.54</b>	<b>.54</b>	<b>.54</b>	<b>.47</b>	<b>.30</b>	<b>.24</b>	<b>.24</b>	<b>.30</b>	<b>.23</b>
<b>Administration.....</b>	<b>.96</b>	<b>1.02</b>	<b>1.26</b>	<b>1.42</b>	<b>1.43</b>	<b>.94</b>	<b>.86</b>	<b>.85</b>	<b>1.25</b>	<b>.91</b>
<b>Manufacturing total.....</b>	<b>29.30</b>	<b>31.59</b>	<b>30.26</b>	<b>31.16</b>	<b>31.50</b>	<b>29.03</b>	<b>28.05</b>	<b>28.33</b>	<b>32.99</b>	<b>31.93</b>
<b>Freight, cartage, and storage.....</b>	<b>3.60</b>	<b>3.88</b>	<b>4.34</b>	<b>4.44</b>	<b>4.22</b>	<b>4.42</b>	<b>4.43</b>	<b>3.85</b>	<b>4.26</b>	<b>4.08</b>
<b>Sales-division expenses.....</b>	<b>.40</b>	<b>.40</b>	<b>.38</b>	<b>.24</b>	<b>.23</b>	<b>.23</b>	<b>.21</b>	<b>.19</b>	<b>.28</b>	<b>.20</b>
<b>Settlement charges.....</b>	<b>2.60</b>	<b>2.86</b>	<b>2.44</b>	<b>1.44</b>	<b>1.26</b>	<b>.78</b>	<b>1.18</b>	<b>.71</b>	<b>.43</b>	<b>.25</b>
<b>Marketing total.....</b>	<b>6.60</b>	<b>7.14</b>	<b>7.16</b>	<b>6.12</b>	<b>5.71</b>	<b>5.43</b>	<b>5.83</b>	<b>4.75</b>	<b>4.98</b>	<b>4.53</b>
<b>Total cost delivered.....</b>	<b>35.82</b>	<b>38.73</b>	<b>37.42</b>	<b>37.28</b>	<b>37.23</b>	<b>34.46</b>	<b>33.88</b>	<b>33.08</b>	<b>37.97</b>	<b>36.47</b>

to the fact that while between 1900 and 1909 the wages of labor were raised twice, and the shift of hours (or hours of labor) changed from 12 and 13 hours to 8 hours per day, the labor cost per ton of product was lower in the two years of high wages and short hours than in the former years of long hours and lower wages.

corresponding increase in pay roll totals.



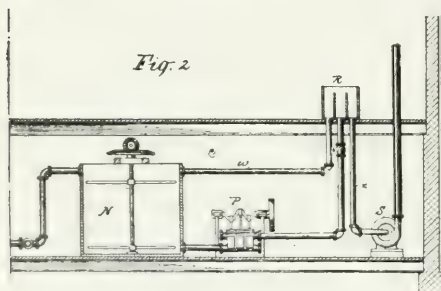
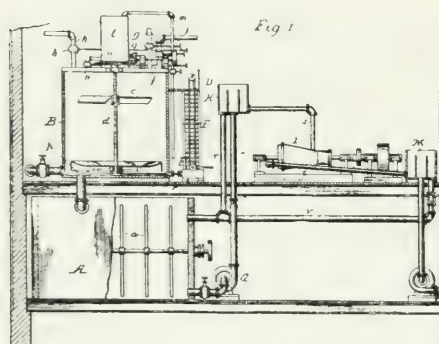
The New Brunswick Pulp & Paper Co., Millerton, N.B., expect to have their new kraft machine, which will double the capacity of their plant, in operation early next spring.



# IMPROVEMENT FOR MANUFACTURING NEWSPRINT.

The International Paper Co., of New York, has been assigned a patent granted to Mr. Warren Curtis, relating to certain new and useful improvements in the manufacture of paper, which is designed particularly to realize an important economy in the procedure at present practised for supplying paper machines with the stock mixture, and, at the same time, to obtain practical uniformity in the quality of the paper produced.

The purpose of the invention is to sup-



press the use of beater engines for mixing purposes, and to provide an organized procedure for the manufacture of newspaper, wherein the paper machines employed at the mill for producing a certain quality of output, can be supplied with stock of a practically uniform character, which will not vary materially during successive time periods. To this end, there is substituted for the beater engines of small capacity and inefficient

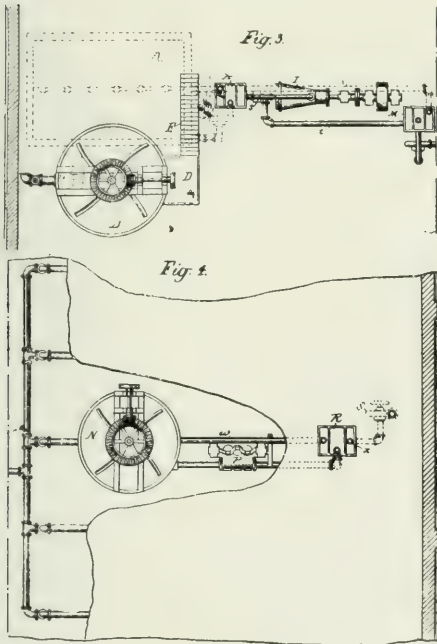
service, a source of practically uniform and thoroughly intermingled stock mixture, adapted to be efficiently operated by a single attendant, the necessary controlling valves for the admission of the several ingredients and for the discharge into the main stuff chest of the mill of the mixed batch being within immediate proximity to each other so as to be operated by him with corresponding facility. This source of uniform supply is also of a capacity corresponding to the combined capacity of the beater engines for which it is substituted, and is provided with mixing devices of such an efficient character as to effect a practically homogeneous intermingling, not only of the two qualities of pulp employed, but also an equally complete and homogeneous admixture with the pulp, of the remaining ingredient. From this source of practically uniform stock mixture supply, is replenished, at intervals, the main stuff chest of the mill, the said main stuff chest being provided with an agitator, to prevent settling and stratification, and being of such capacity as to fully satisfy the demands of the paper machines, during the intervals between successive batches from the batches of the stock mixture and, in fact, being of such capacity as to maintain a relatively large permanent or dominant mass or pool of the stock mixture, for the purpose of rendering entirely inconsequential even such slight variations as might conceivably exist between successive batches from the source of mixture supply.

From the receiving reservoir or main stuff chest, the stock is preferably passed through a plurality of Jordans and thence to the individual stuff chests of the several paper machines, wherein it is kept in agitation, and from which it is withdrawn by the measuring pumps, and is finally delivered to the screens of the paper machine.

Fig. 1 represents diagrammatically and in elevation a part of the main elements of a system or organization of apparatus for putting the invention into practice;



Fig. 2 represents a continuation of the view shown in Fig. 1; Figs. 3 and 4 represent corresponding plan views of the parts shown in Figs. 1 and 2, respectively. A indicates the main stuff chest, which, in this instance, may be assumed as supplying say from two to five papermaking machines of the usual size and capacity of output, for the production of newspaper. The main stuff chest A is provided with an agitator a of any suitable character for preventing stratification; and separation of the ingredients of the mixture.



In convenient proximity to the main stuff chest A is located the preliminary mixing device, constituting the source of the practically uniform and homogeneous mixture. This preliminary mixing device consists of a tank B, provided with a rapidly rotating stirrer, preferably of the type wherein a downward, outward and inward movement or flow of the material is produced. The propelling agitator or stirrer is, in practice, revolved at a very high rate of speed, approximating about one thousand

(1,000) feet of travel per minute at the periphery thereof, so as to cause the most intimate and thorough intermingling of the ingredients, and this mixing operation takes place with special completeness at the lower portion of the tank B, assisted by the preliminary action, if need be, of a number of blades c attached to the upper part of shaft d of the stirrer and having a slight downward inclination.

The ground wood pulp is admitted through a conduit f provided with a cut-off valve f' and the sulphite pulp is admitted through a pipe g provided with a cut-off valve g'. The white water conduit h coming from the paper machines is likewise provided with a cut-off valve h' and a receiving tank l for the clay mixture is supplied therewith from a suitable pipe m. The clay tank may likewise serve as a measuring vessel for accurately gauging the quantity of clay admitted into the batch and is provided with a discharge pipe n having a cut-off valve n' and leading into the tank B. The color, alum, sizing and the like, which are small in amount, may be conveniently added to the batch by hand, from pails or buckets provided for the purpose.

The general contour of the mixing tank B is preferably cylindrical, or of some other regular form, so as to permit the operator to judge accurately as to the relative proportions of the several ingredients added by noting their effect in raising the level within the tank B as they are separately added thereto. The tank B, which is, in the usual practice, about fourteen feet in height, and of the relative dimensions illustrated in the drawing, is provided with a platform D and with a stair E or other suitable means for reaching the platform, and the several cut-off valves are located in close proximity to each other, so as to be readily accessible to a single operator standing upon the platform. So, also, the discharge gate p for admitting the mixture into the stuff chest A is preferably operated from the platform through

the intermediacy of a controlling lever which actuates a hydraulic or other cylinder F, whose movable piston is connected with the stem or rod of the gate.

A rotary pump G is connected with the lower portion of the main stuff chest A and lifts the stock to the flow box H into the Jordan I, the flow box being provided with the usual overflow, return r to the main stuff chest A and being provided with the pipe connection s leading to the Jordan. In like manner a second Jordan, in line with the first, is supplied from the same pump through the intermediary of its individual flow box, as indicated in the plan view, Fig.

3. From each Jordan, the stock passes through a conduit t to a flow box M provided with an overflow b leading back to the main stuff chest, and from each of these flow boxes, the stock is passed to the individual stuff chest N of a paper machine, which stuff chest is provided with an agitator, for preventing stratification of the mixture and for keeping the solid particles in suspension. A measuring plunger pump P lifts the stock from the individual stuff chest N to the flow box R having a return w and having a connection x which leads to the pump S. The pump S lifts the stock to the screen of the paper machine.

It is apparent from the foregoing description of the construction and arrangement of the system that a plurality of paper machines may be supplied with stock of practically identical quality and that this plurality of machines will, therefore, turn out a practically uniform product, not only during fractional periods of time, but for the entire operation of either or both machines, for however long an interval either or both may be kept at work.

According to the patent specification, the dominating mass or uniform stock present in the main stuff-chest and the practically absolute uniformity with which that stock is replenished from

time to time from the large capacity mixing tank B rendered inappreciable any slight variations that might conceivably exist between successive batches produced in the mixing tank B; so that a uniform product at all times can be relied upon, whatever the number of paper machines served from the main stuff-chest and a product wherein the ingredients are intermingled, and incorporated with each other with substantial homogeneity. Moreover, where the stock is supplied to the main stuff-chest from a plurality of beater engine mixers the individual errors from each of the small batches are cumulative and are correspondingly multiplied in the stock; whereas, a like individual error in the charge of the tank B would be relatively insignificant and negligible and would not interfere in any appreciable way with the practical uniformity of the stock supply. Furthermore, in so far as the plant itself is concerned, the entire mixing operation is conducted not only at a less initial cost of installation, and with a corresponding economy in floor space, but also the services of a great number of operators are dispensed with and the single mixer is manipulated by one operator with a degree of certainty and uniformity appropriate to the exceptional facilities available for use by him.

It will, of course, be understood that, if desired, an additional mixing tank B may be held in reserve to be substituted for temporary use should the tank B, for any reason, become disabled; or, where the mill is provided with a larger number of paper machines than can be supplied by a single main stuff-chest, the entire arrangement illustrated in the drawings may be duplicated on the same, or on a larger scale.

So far as the patentee is aware, it is new in the papermaking art to supply a plurality of paper machines designed to give the same product, from individual stuff-chests, which in turn are supplied from a main stuff-chest, wherein there is preserved at all times a dominating mass or pool of the constant

and unvarying quality desired, and which mass is replenished from time to time from a practically uniform source of supply, of such large volume that any possible minor variations between successive batches would be inappreciable in the main stuff-chest mixture.



### **TROUBLE OVER FREE PAPER CLAUSE.**

(Correspondence of American  
Economist.)

The Canadian measure which the Democrats put through Congress is already getting the administration into trouble. The free paper and free wood pulp clause of the measure had no reciprocity in it. That was not in accordance with the agreement with Canada, but was put in the bill by the Democrats in the House. Senator Root sought in the Senate to amend that paper provision in accordance with the agreement, so that Canada should not be permitted to export print paper and pulp to the United States free of duty, while she imposes a duty on all such paper or pulp sent from the United States to Canada. But while the President admitted that the Root amendment was in accordance with the agreement, and Minister Fielding of Canada, who helped to negotiate the "treaty," said the same thing, yet the President opposed the amendment, and Senator Root abandoned it.

Now Canada's print paper and wood pulp, the latter not coming from crown lands, is admitted free. Paper such as is used by magazines for instance, is not allowed the same privilege. This discrimination in favor of daily newspapers is already causing many expressions of indignation. But that does not trouble the State Department as much as the demand of Germany and other countries having the "most favored nation" clause in their treaties with the United States for the same privilege.

This cannot be denied to them. There is no reciprocity in that provision of the law and Germany, Sweden and other countries exporting pulp or paper have the same right to free admission into the United States that Canada has, and it will have to be granted, and any duty they have paid on such products since the law took effect will have to be refunded.



### **ONTARIO'S 1910 LUMBER CUT.**

Ontario still produces a little over one-third of the quantity of the lumber cut annually in Canada, but its annual cut, while increasing, is increasing more slowly each year. Ontario's 1909 cut was 17 per cent. greater than in 1908; its 1910 cut was only 7.5 per cent. more than in 1909. The Forestry Branch of the Department of the Interior has compiled statistics showing that 1,642,191,000 feet of lumber, worth \$30,011,000, was cut in Ontario during 1910, but that British Columbia will be Canada's premier lumber province in a short time. The diversified forests of Ontario have enabled this province to hold its supremacy up to the present, as illustrated in 1910, when the chief cut of seventeen species came from Ontario. White pine to the value of \$17,743,074 came from Ontario forests and formed 85 per cent. of Canada's white pine cut. Nearly half of the hemlock cut in Canada in 1910 was cut in Ontario as was over 90 per cent. of the red pine. Ontario contributed over 70 per cent. of the hardwoods. Of the total made up by 23 species cut in Ontario, over one-half was white pine. Red pine contributed 10 per cent., hemlock 12 per cent., leaving 25 per cent. to be equally divided among the hardwoods and less important conifers. To arrive at the correct amount cut by lumber mills of Ontario in 1910, there must be added to the above lumber cut 1,976,000,000 shingles, worth \$3,557,211, and 851,953,000 lath worth \$1,943,544.



### TESTING BLEACH LIQUORS.

Mr. R. E. Bradley, of Winchester, Mass., has made some tests of particular interest with reference to testing bleaching solutions. The method generally adopted by paper-mill chemists for estimating the available chlorine in bleaching solutions consists in titrating a known volume of the bleach with standard arsenious acid solution and determining the end point by removing a drop to iodostarch paper or to a drop of potassium iodide and starch on a porcelain plate. This method works very well with solutions of chloride of lime, but much trouble has been experienced in titrating the available chlorine in bleach made in the wet way, viz., by passing chlorine gas into an excess of milk and lime. A little consideration may point to the apparent reason. Chloride of lime is made by saturating slaked lime with chlorine gas. Under these conditions the compound formed would have the composition  $\text{CaClOCl}$ , and there would be no free alkali from the calcium hydroxide. Bleach liquors, on the other hand, made by passing chlorine gas into milk of lime, contain considerable quantities of free hydroxide in the finished product, because an excess of milk of lime is always present. When bleach made in the latter way is titrated, a considerable amount of  $\text{OH}$  ions is introduced into the reaction.

It is well known that in an iodometric determination nothing but the bicarbonate may be present; all other alkaline carbonates reacting alkaline and absorbing iodine, more or less rapidly, according to conditions. This means that any method which uses iodine to color starch at the end point will be inaccurate if hydroxyl ions are present. That hydroxyl ions are present in bleach made in the wet way is shown theoretically, and may be proved analytically, whereas it can be equally proved that hydroxyl ions are not present in bleach made from chloride of lime.

Mr. W. A. Puckner has shown that it is incorrect to suppose that sodium bicarbonate has no action upon iodine. He showed that when using one to two grammes of bicarbonate an error of 1.5 to 4.5 cc., or 0.1 normal iodine was introduced, even when the bicarbonate used is exceptionally pure and proved to be free from carbonate, sulphite, or thio-sulphate.

The above researches go to show that except under the most exacting conditions the arsenious acid method for the determination of the available chlorine in the wet-process bleach liquors is not absolutely reliable. A more reliable method is the process proposed by Bunsen, where a definite volume of bleach is delivered into a large excess of potassium iodide; acetic acid is then added, and the iodine liberated is titrated by thiosulphate. Here, since the solution is made acid there can be no hydroxyl ions present, and this trouble is avoided. Care must, however, be taken not to use a strong acid, as this would attack the chlorates present, more or less, according to the time and temperature. This method gives the most accurate results that could be desired. The only objection to it lies in the cost of the potassium iodide.



### IMPERMEABLE WRAPPING PAPER.

The following is a formula for rendering wrapping paper impermeable, a matter of importance in the case of shipments to remote distances, incurring perhaps a sea voyage and probable exposure for a greater or less length of time to inclement weather. Dissolve in a liter of water, for one part, 700 grammes of white soap; in another liter of water 60 grammes of gum arabic and 180 parts of glue. Mix the two solutions and heat the mixture to near the boiling point, without allowing it to boil. The packing paper is steeped in the resultant liquid and it is then allowed to dry on bands or rollers, in such manner as to permit it to drain or drip.



## ALBERTA'S PULPWOOD RESOURCES.

(Special to Pulp and Paper Magazine.)

As soon as transportation facilities are provided, Alberta will become as important a province in the production of wood pulp as Quebec is at present. There are along the western boundary of Alberta and scattered generally over the northern two-thirds of the province, large areas of timber land, covered with stands of white and black spruce, Engelmann spruce and Jack Pine, tamarack, aspen poplar and cottonwood, timbers which are all adapted for the manufacture of wood pulp.

The whole country is well watered with large and small lakes and rivers, practically all the timber is near enough to some water course to be accessible and in every district there is sufficient waterpower capable of development for pulp manufacturing purposes. The lack of transportation facilities is the great obstacle in the way of the present utilization of this timber for pulp and paper. But by the time the pulp wood forests of Eastern Canada are all taken up by operators, railroad extension will have made the forests of Northern Alberta accessible to the operator. In fact, there are at present railroads in operation or under construction which open up or nearly reach good pulp areas. One of these is a C.P.R. branch which extends from Red Deer to the Brazeau coal fields; another is the G.T.P., which between Edmonton and the Rockies crosses the Pembina and Athabasca Rivers, both of which drain extensive pulp areas, and another is the C.N.R. branch extending from Edmonton, 100 miles north, to Athabasca Landing, on the Athabasca River. The Athabasca River above Athabasca Landing runs through many large areas of timber suitable for pulp. It is also capable of great power development.

Any company wishing to acquire stumpage in the future will not necessarily be at the mercy of the speculators

who have already acquired timber leases. There are large areas of good pulpwood outside the present leases which are as yet unalienated from the Dominion Government. The Dominion Government method of leasing timber lands, which has been in force for four years, is that no timber shall be leased except to those who are prepared to operate it. Such a policy will preserve this northern timberland for the actual operator.

The labor question will not necessarily be a great handicap. Large sawmills operating in Northern Alberta and Northern Saskatchewan are able to secure all the labor they require. Some sawmills employ 500 men around the mill and 2,000 men in the woods.

One tract which seems especially well located for a pulp operation is the country surrounding Lesser Slave Lake. Lesser Slave Lake lies about 190 miles northwest of Edmonton. It is a body of water about sixty miles long by twenty to thirty miles wide. This lake drains a tract of about 6,000 square miles nearly all of which is forested. The whole drainage basin of the lake is well watered with driveable streams, so that very little of the timber would be inaccessible.

The country around the lake is marshy, timbered with tamarack. From an elevation of about 2,000 feet at the lake the land rises to 4,000 feet at the summit of the watershed, enclosing the lake. The slopes are all gentle and free of rock. The summits of the ridges at the sources of the rivers are without timber, except an alpine type of balsam, but the broad gentle slopes are heavily timbered.

The timber in this region is lodgepole pine, Engelmann, white and black spruce, Jack pine, balsam, fir, aspen, poplar, tamarack and cottonwood, in the order of their importance. These woods are not all used by Canadian pulp manufacturers at present, but it has been demonstrated in experimental laboratories that they will each produce profitably a good grade of pulp.

The only species which cover large areas are lodgepole pine, Engelmann spruce and aspen. The lodgepole pine occurs in pure stand over hundreds of square miles. It reaches a diameter of 14 inches, a height of 90 feet, and is a heavy pulpwood producer. It is very clear of limbs, straight, free from taper and is not very resinous.

Spruce grows rapidly and in heavy stands in this country. White and Engelmann spruce are most common; there is a comparatively small proportion of black spruce. Spruce here reaches a diameter of 24 inches, a height of 110 feet, and produces 25,000 feet of lumber per acre.

Jackpine is not very plentiful in this territory. It occurs only on sandy and gravelly ridges of which there are few. It is short limby, very pitchy and not very suitable for pulp.

Aspen poplar occurs only on the old burn, of which there are here comparatively small areas. It covers perhaps 100 square miles in the Slave Lake drainage basin and would produce on an average ten cords per acre. The wood is clear and fairly free of rot.

Cottonwood grows only in the river valleys. It is the largest tree of the north, reaching a diameter of five feet. The large trees are rotten at the heart, but the smaller trees are sound and would make fine pulpwood.

The whole territory has been remarkably free of fire. There are practically no untimbered burns and prairies on the whole watershed. None of the timber in this watershed is held under license.

Lesser Slave Lake drains by the Lesser Slave River, 30 miles long, into the Athabasca River about 50 miles above Athabasca Landing. All of the timber described would be tributary to a mill anywhere on this eighty mile stretch of river. Such a mill would not be over 150 miles from Edmonton, 100 miles of this distance already covered by railroad. There is a small settlement around Grouard at the west end of the

lake, and a Post Office, a Mounted Police Station, Sawridge, at the east end.

Between Lesser Slave Lake and the western boundary of Alberta in the territory drained by the Smoky River and its branches, there is a vast area heavily timbered with pulpwood. All the water in this country flows north to the Peace River and the pulp resources are, therefore, inaccessible at present. In the heaviest of this timber about two hundred square miles have been under lease for some years for lumber production. All the remainder of the territory is unalienated from the Crown.

The Forestry Branch of the Department of the Interior has had two parties out examining this territory this summer. The reports which will be published in a few months will give detailed information on the timber resources.

There is no doubt but that the results will be more encouraging than was the examination along the route of the Hudson Bay Railway. The latter country had, because of its rocky and swampy character and more severe climate, never carried so heavy a stand of timber as the Lesser Slave Lake country. The valley of the Nelson River which the Hudson Bay road follows, has been so much travelled by Indians and traders that it has been repeatedly burned and the original forest destroyed. As a result there is not enough timber to supply a pulp mill between Split Lake and Hudson Bay.—“M.”



—Walter B. Snow announces the recent addition to his staff of Mr. Sidney G. Koon, M.M.E., for four years editor of “International Marine Engineering,” and later metallurgist, Jones & Laughlin Steel Co.; and also the addition some time since of Mr. John S. Nicholl, B.S., lately with the New York Edison Company, and formerly acting manager for F. W. Horne, importer American machinery, Yokohama, Japan. Both are members of the American Society of Mechanical Engineers.

### THE SPECIALIST IN PAPER- MAKING.

Owing to the increased demand for papers of distinctive as well as attractive qualities, a field in paper manufacture has been opened for the man of creative ability in paper-making. The science of advertising is partially responsible for the efforts of paper-makers to produce a paper that will be a sufficiently attractive background for beautiful cuts and well formed sentences upon which the advertiser depends.

Much time and study have been devoted to the manufacture of cover papers during the past two or three years, with the result that papers of beauty as well as strength are seen covering advertising booklets and catalogues, every new idea in these lines taking precedence over all others. But the paper-maker has by no means overreached himself, and the future is bound to present to paper users a product that will continue to improve upon that which we have at present, because the subject is being closely studied by paper-makers and chemists, and machine makers are co-operating with the paper manufacturer in producing machines which will impart to the paper certain surface qualities that are at present unobtainable. More inventions applying to the paper industry have been made during the past decade than ever before in a similar length of time and not a few of these apply to the mechanical departments in a paper mill.

The production of special papers that meet with favor of the printer and publisher can only be made through the skill of the paper-maker, and with the assistance of proper raw materials and efficient machinery.

The use to which the paper is put determines the grade of material used and its treatment or preparation for being run over the paper machine. Contrary to the belief of those slightly informed on paper-making, the paper

machine is of secondary importance; strength, opacity, transparency, bulk, color, etc., are obtained by the selection of proper material or fibres and the manner in which they are treated in the beating engines. The paper machine receives the stock thus prepared and its work merely produces a web or sheet from the millions of finely drawn fibres fed to it from the beater engines receiving tanks or chests.

Thus it will be observed that the real factor of most importance is the man whose originality enables him to select certain combinations of raw materials that will give to the paper the qualities sought, and then the proper beating or blending of these fibres in the beating engines, so that strength, pliability, softness or harshness, opacity, bulk and any of the several other qualities result from his efforts.

In the first place, his knowledge of the various fibres, such as linen, cotton, straw, wood, corn, bagasse, hemp, and so on, must be most complete; each of these fibres will produce certain qualities in paper, and the attainment of the sought for quality depends, of course, upon the blending together of several of these fibres.

After the furnish and the treatment of it in the beater is determined, the remainder of the process of paper manufacture may be said to be purely mechanical, and those mechanically inclined are in a better position to originate certain pieces of machinery that will give to the surface of the paper, as well as its look-through and "water-mark," odd and attractive appearances which appeal to the paper buyer who seeks a speciality.

A long desired paper is one that will replace the highly polished surface paper, commonly termed "coated," and for many years the paper-maker has tried hard to produce an absolute smooth surface paper, minus the polish and glare of the surface coated sheet. But he has not succeeded in making a



paper that will take the same cuts as are printed on the coated papers.

There are papers with the dull finish that the makers claim are just as usable as the calendered coated paper, but they are also coated. The coating, however, is not polished or calendered, and so far they have not met with the success a dull machine finished paper would obtain if it could be made with an absolutely even surface. Whether or not this will ever be accomplished is practically unanswerable, but expert paper-makers seem inclined to believe that it will not be without the application of mineral matter, such as clay, kaolin, or some similar substance, for in making the fibres of a sheet short or fine to produce as even and unbroken a surface as that secured by the material mentioned, would rob the paper of its strength and would hamper production. It is, of course, possible to calender or "finish" the surface of a paper until it becomes as smooth as a coated surface, but in doing so it is blackened and loses its bulk.

The solution seems to be in the use of a material which can be applied to the surface of the paper on the machine, and which will require but slight pressure from the calender rolls to cause it to imbed itself and fill up the unevenness in the surface of the paper. This undiscovered material must be light in weight, of pure white color and wearable, and should have an affinity for paper fibres. Should the substance be discovered the proper machine for applying it would soon be supplied; therefore it would seem that the chemist is likely to have the honor of giving to paper-making one of its greatest discoveries.

A closer relation between the man seeking new papers and the paper-maker would tend to create such papers much sooner than they appear nowadays, as a high grade printer told the writer recently: "I know just about what I want in paper, but I do not know anything

about paper manufacture, and I would like to become well acquainted with a good man in that business, for I feel that by talking with him and explaining my ideas of what paper should be for use on certain jobs, I could succeed in having him supply just what we desire."

There is plenty of business for a mill or mills that would seek trade for specialties in paper. There is no end to the buyers who are seeking something absolutely new in paper, and it is surprising in many ways why the paper-maker does not attempt to ferret out this business on which the buyer is willing to repay the paper-maker for the paper he desires.—Paper.



#### SWEDISH WOOD-PULP MARKET.

The export of wood pulp from Sweden for the first three quarters of the year 1911 considerably surpassed in quantity and in value the corresponding period in previous years and this increase was apparent in each of the three-month periods. Shipments declared for export from Gothenburg to the United States for the first nine months of the year aggregate \$1,280,000 in value, \$50,000 more than the total value for the entire year 1910.

The third quarter of 1911 opened with prices much firmer in all lines of wood pulp. The principal factors in this strengthening of the market were: The lockout in the Norwegian mills reducing the output of mechanical pulp by some 30,000 tons per month and that of chemical pulp about 20,000 tons per month; the voluntary reduction in the output of mechanical pulp initiated by the Swedish and Norwegian wood-pulp associations and which took effect June 1; and the water famine which threatened.

The water famine, feared throughout the second quarter of the year, was fully realized in the third quarter. Drought prevailed with few interruptions from the spring until the 1st of October, lowering the water in lakes and rivers



to such an extent that by the middle of August several power stations were forced to shut down or to use their reserve plants for steam operation, while most of the pulp mills turning out mechanical pulp were obliged either to shut down altogether or to work on half or quarter time. The effect of this condition on the market for mechanical pulp was decided, especially as the fall and winter outlook for water is far from good. By the 1st of September a little rain had fallen, but not enough to make any noteworthy difference, and the compulsory reduction of output brought about by the water famine was estimated in the beginning of September at 2,500 to 3,000 tons per week. By this time also the stocks of dry pulp stored at the mills as a result of the over-production of the preceding year had been fairly well worked off. By the last of September 70 per cent. of the mill capacity of central and southern Sweden for mechanical pulp had been thrown out of action by the water famine, and the balance was operating on half or quarter time, while the production in the rest of the country was certainly not more than 75 per cent. of the normal. It is hardly probable that this condition of affairs will alter much before March or April, when the spring freshets may be expected.

This condition of the market is undoubtedly having its effect on those paper makers in England and on the continent of Europe who rely on Swedish sources for their supply of mechanical pulp. The dry mechanical pulp from Sweden goes mostly to Germany, France, Belgium, and the Iberian Peninsula, and the wet to England. Mechanical pulp constitutes about 40 per cent. of the pulp exported from Gothenburg.

At the opening of the third quarter of 1911 wet mechanical pulp was quoted at 30 to 32 crowns (\$8.04 to \$8.58) per ton f.o.b. At the close it was selling at 40 to 45 crowns (\$10.72 to \$12.06), and for autumn and winter delivery there is at present almost none to be had. Dry

mechanical pulp, which was selling at 65 to 70 crowns (\$18.22 to \$18.76) per ton f.o.b. on July 1, was quoted at 80 to 85 crowns (\$21.44 to \$22.78) at the close of the quarter.

The value of wet mechanical pulp shipped to the United States from Gothenburg during the first nine months of 1911 totalled \$21,273 and of dry mechanical pulp \$23,581.

Chemical pulp, or cellulose, constitutes the bulk of the wood pulp shipped from here to the United States. The improvement in this side of the market has been slow but steady throughout the quarter. Quotations for chemical pulp on July 1 were about as follows: Strong sulphite, 114 to 122 crowns (\$30.55 to \$32.70); easy bleaching sulphite, 130 to 135 crowns (\$34.84 to \$36.18); strong sulphate, 112 to 120 crowns (\$30.02 to \$32.16); easy bleaching sulphate, 117 to 125 crowns (\$31.36 to \$33.50). At the close of the quarter they were about as follows: Strong sulphite, 117 to 125 crowns \$31.36 to \$33.50; easy bleaching sulphite, 135 to 140 crowns (\$36.18 to \$37.52). All prices are per ton f.o.b. Quotations for strong and easy bleaching sulphate were the same at the close of the quarter as at the beginning.

The value of dry chemical pulp (the most important factor in the trade with America) shipped from Gothenburg to the United States in 1911 was \$317,138 in the first quarter, \$384,110 in the second quarter, and \$526,700 in the third quarter. Of wet cellulose, none was shipped in the first quarter, \$3,091 worth in the second quarter, and \$3,090 worth in the third quarter.



#### PRESERVING WOOD PULP.

When white wood pulp is stored, locally limited discolorations at times occur which are generally designated dry-rot or mould. This is particularly to be observed in such timber as was felled during the periods of growth or has grown rapidly and spongy under

favorable conditions in rich soil, says B. Haas in *Der Papier Fabrikant*. On the contrary, timber grown slowly on poor soil appears to be far more resisting to the defects in question. Timber of the former kind consequently requires much more careful treatment than that of the latter. Rapidly grown, spongy timber must be barked soon after it is felled, and removed from the forest or be stored in dry and airy places. Also, the ends must be turned away from the weather side and the long storage of such timber must be entirely avoided as much as possible. The excitors of the rot are by no means killed by the heat and friction which occur during the grinding process and for the most part pass into the mechanical wood pulp. The development of dry rot is best prevented by air and light. Further, it is well to place flat vessels containing chloride of lime, liquid sulphurous acid, bisulphite solutions and the like in the drying rooms, both in the case of air drying and also artificial heating. The temperature obtaining with air drying is generally not sufficiently high to kill the excitors of dry rot.

Recently it has been proposed to preserve piled up wood pulp by enveloping it as closely as possible with brown wood pulp. Trials on a large scale, have however, shown that brown wood pulp by no means always has a preserving action, and when it is also assumed that the odoriferous substances from brown wood pulp are adapted to stop the excitors of dry rot in their development, this can hold good clearly only for the outside surface of the pile to be protected. If piled up wood pulp has been well preserved in many instances when wrapped up in brown wood pulp, this is not to be attributed to the action of the odoriferous substances from the brown wood pulp, but to the readily provable fact that the cardboards to be protected were in such cases perfectly or almost perfectly free from germs of infection.

## ABSORPTION OF HUMIDITY BY PAPER.

The papers used for wrapping needles have been especially investigated and the writer has made some experiments with regard to the part played by sizing in the absorption of atmospheric moisture.

Provided that we are dealing with water or with a liquid, a heavily sized paper will absorb less moisture and take a longer time to become soaked, than a paper that is lightly sized. But when the moisture is in the form of vapor, as it is in the atmosphere, if we take precautions, so that it is not deposited in drops, the weight of the sizing has no effect, and some papers, wholly without size, become saturated with moisture less rapidly than heavily sized kinds.

In the course of these experiments, strips of paper, carefully weighed, were kept in a tight vessel, in which the air was kept saturated with water, and which was protected against the effects of cold currents, capable of causing the moisture to condense.

At regular intervals, the strips were weighed, to determine the moisture absorbed. It was noted that the quantity of moisture taken up grew very rapidly, owing to the first hours of the exposure, say for twenty-four hours; at the termination of this period, while the paper continued to absorb moisture from the atmosphere, it was more slowly; after six days, no further increase could be noted and the observations were concluded.

The exact quantity of moisture absorbed by the different papers in the same atmosphere, varied according to their character. It might be stated, in summing up, that paper exposed for several days to a very humid atmosphere, would absorb approximately double the proportion of moisture to that with which it would become charged in an atmosphere of normal dryness.

Heavy sizing does not assure protection to paper against a humid atmos-

phere; finally, it would appear that the character of the finishing exercises an influence on the absorption of humidity, likewise the presence of soluble salts of the water, which all the sized kinds contain to a limited extent.



### JAPANESE TRADE IN PAPER.

Japan buys about \$4,000,000 worth of foreign-made paper each year. The demand for glazed paper in Japan is increasing rapidly, and while the Japanese themselves have now undertaken the manufacture of this product, the possibility of increasing the exportation of American glazed paper to this country is quite promising.

The quantity and value of paper imported into Japan during 1910, together with the quantity and value of paper pulp imported during the same year, are shown in the following table, by countries:—

Articles and Countries.	Pounds.	Value.
<b>Printing paper—</b>		
Great Britain ...	13,564,505	\$590,836
Germany .....	8,252,009	228,109
Belgium .....	12,507,231	474,544
Austria-Hungary .	1,727,425	56,104
Netherlands ....	403,052	16,344
Sweden .....	4,207,785	105,329
Norway .....	1,911,825	56,096
Russia .....	1,327,976	32,432
United States ...	3,794,736	158,505
Other countries ..	1,707	58
<b>Total .....</b>	<b>45,970,826</b>	<b>\$1,718,357</b>
<b>Pulp—</b>		
Great Britain ...	2,958,965	57,785
Germany .....	38,964,227	798,070
Sweden .....	34,387,362	642,854
Norway .....	1,871,442	33,612
Denmark .....	1,118,357	24,170
United States ...	980,624	24,746
Other countries .	80,049	2,006
<b>Total .....</b>	<b>80,361,026</b>	<b>\$1,583,243</b>

### MATERIALS FOR PULP MAKING.

(Continued from last issue.)

It is true that for many papers, especially those intended for writing and the higher grades of printing, the properties representative of the highest quality are not obtainable except through the use of a large proportion of rag stock. For insulating papers, such as cable paper, however, manila stock is distinctly better than rag, and curiously enough, so is even a lime cooked straw pulp. Where great toughness is desirable, as in tag and certain wrapping papers, the highest quality is obtainable only through the use of manila and similar bast fibres.

The relation of the wood fibres to quality has been a matter of controversy since the time of their introduction. As to ground wood, there is probably now no question of its unsuitability for practically every use involving permanency, since exposure for even a few hours to direct sunlight renders ground-wood papers weak and brittle. It is particularly undesirable in so-called manila papers intended for making envelopes which, if containing much ground wood quickly lose all strength on the fold under the influence of sunlight. For wall papers, rather strangely, ground wood does not seem open to much objection, partly because no great strength is required of such papers, but principally because the surface coating with size and color protects the paper beneath. For newsprint paper, ground wood remains the only possible material in spite of some minor disadvantages for such use.

Sulphite and soda fibre, if thoroughly well cooked and carefully bleached, are probably nearly, and perhaps quite, as permanent as rag stock. In fact, the examination of over 400 samples of paper from the library of the University of Berlin showed that papers composed wholly or in large part of chemical wood fibre gave slightly less evidence of deterioration than all rag papers.



Since the better grades of rag stock are considerably more expensive than chemical wood fibre, endow the paper with more wearing power and better feel and texture, the presence of wood fibres, is, in most cases, properly regarded as tending to lower quality. They are highly objectionable in papers for making parchment and vulcanized fibre, which should consist wholly of cotton rag stock.

The number of cases in which mineral filler improves the quality of paper is comparatively limited, although it is well recognized that for certain uses a moderate amount of filler reacts favorably upon quality, by increasing opacity, and improving feel and finish. Filler invariably, however, lowers strength and resistance to wear, diminishes bulk for weight and tends toward brittleness. In many special papers it is wholly inadmissible.

The number of factors which are concerned with the quality of paper in its multitudinous applications to special uses is so great as to prevent consideration or even enumeration of them all. A paper for wrapping hardware or a card for mounting silver jewelry may seem to possess every desirable property, and yet be worse than useless because of a trace of sulphur. A printing paper may develop "whiskers" or clog the type by mineral filler, a coated paper may pick or develop odor, a cigarette paper may burn badly, a writing paper may allow the ink to spread because the size has been converted into peptones by overheating, a filter paper may fail to hold a fine precipitate or unduly retard the passage of liquid, and so on. Enough has been said to suggest to consumers of paper the complexity of the problems involved in the determination of quality, the importance of paper testing, and the advantages to both maker and consumer of carefully considered and intelligently drawn specifications defining quality as a function of intended use.

## MICROSCOPICAL TESTS OF PAPERS.

According to a statement of Professor Dr. Herzberg, of the Charlottenburg Institute, the old methods have been almost abandoned, by which paper for microscopical tests was obtained by scraping off the surface with a knife, or by removing a portion with a needle, the fibres thus obtained being only serviceable to a limited extent.

With the process by decoction, not only are the fibres separated, but with them all the other substances contained in the paper, which renders it difficult to define the structure of the fibres. For a long time past the disaggregation of paper has been effected by means of a lye of diluted soda, which gives a clear pulp, suitable for use and not containing any hurtful substances, such as size, filling material, or starch.

Consequently astonishment is expressed at the proposal of Koenig to abandon the process of decoction and to return to the system of scraping, on the ground that it produces the desired result more rapidly than boiling or loosening the fibre. Professor Herzberg remarks that the fibres are, it is true, more quickly prepared for the object-glass, but they are not pure. The decoction of a small sample of paper in a test-glass, while being shaken, in order to loosen the fibres, does not take much longer than mechanical defibration. This last named process produces an extracted substance difficult and slow in examination, so that the apparent saving of time is practically a loss. It should, it is added, be always kept in view, that the right preparation of an object greatly facilitates its microscopical examination. When only a limited time is available, clear and well colored microscopical preparations are necessary for arriving at speedy results.



Fire in the mill of the Quebec & St. Maurice Industrial Company last month did damage to the extent of \$15,000. Crossed electric wires started the blaze.



### TRADE AND MANUFACTURERS' NOTES.

John G. Sutherland, who for the past two years held the position of assistant to the president in the service of the Minnesota & Ontario Power Company, has purchased an interest in Douglas & Ratcliff, Ltd., wholesale paper dealers, Toronto, and assumed his duties on December 1st. Mr. Sutherland has been long identified with the pulp and paper trade. Previous to his connection with the Minnesota & Ontario Power Company, he was for a number of years general sales agent for the Sault Ste. Marie Pulp & Paper Company. Douglas & Ratcliff, Ltd., will hereinafter handle ground wood, sulphite and soda pulps, in addition to their present large jobbing and wholesale paper and newsprint roll and sheet contract business.

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Alexander Gibb, 13 St. John Street, Montreal, has been appointed Canadian agent for Israel Bros., Pirna, Germany, makers of pulp stones for paper mills. The stones are 52 to 54 inches diameter, 26 to 27 inches face and weigh approximately 4,000 lbs.

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The Jeffrey Manufacturing Company, of Columbus, Ohio, manufacturers of mining, elevating, conveying and power transmission machinery and coal mine equipment, have recently opened another branch office at 1201 American Bank Building, Seattle, Wash., from where they will handle their business in the Northwest. Mr. Percy E. Wright, the Seattle manager, is a sales engineer, having been connected with the home office for the past ten years and is thoroughly conversant with the conditions in the Northwest territory, having been travelling in this part of the country for a number of years. The Jeffrey Manufacturing Company are maintaining 13 branch offices in the United States, as well as nearly 100 agencies in the leading commercial centres all over the world.

Lyford, Clark & Lyford, Forest Engineers, is the new name under which the well-known Montreal firm of C. A. Lyford & Co., is now doing business. The members of this firm are: Judson F. Clark, C. A. Lyford, and P. L. Lyford. Mr. Clark and C. A. Lyford are also members of the firm of Clark & Lyford, Forest Engineers, of Vancouver. These two firms are at present conducting forest surveys aggregating over 500,000 acres. They report a rapidly increasing demand for their services.



### CANADIAN PULP AND PAPER MARKETS.

Toronto, Dec. 11, 1911.

Almost all departments of the paper trade are rushed with business. There seems to have been an extra brisk demand for newsprint from the prairie provinces, where several new newspapers have been started, and others are growing. But the demand for news has been very good from practically all over the Dominion, besides which the shortage in the United States has continued unabated and many enquiries have come from that source, and in many instances to no avail, as the stocks here were already fully engaged. Prices have shown a distinct advancing tendency and are likely to show this effect in a still more tangible manner by the New Year.

Even in wrappings there has been an improvement, and though prices, speaking in a general way, do not yet show much improvement, business has been quite brisk and many orders have come in. Operations have been hampered by low water. The better grades of manilas particularly are likely to be advanced within the next few days. The cutting in kraft still goes on.

Tissue and toilet papers are in good demand, while the Christmas trade for parchments and fancy papers started in earnest earlier than usual. There is a steady business being done by the book

and writing mills. They are fully retaining the improvement which started a month or six weeks ago, and the same or more may be said of the coated mills.

The situation in pulp is even stronger than a month ago. The output of many of the ground wood mills has been sold for several months ahead and no piling has been done. Prices are from \$25 to \$28 (delivered) and from present indications famine prices are expected by some to prevail before long. Water powers are still low. Sulphite is very firm partly owing to conditions following strike in Scandinavia. Bleached is scarce at \$52 to \$54, and \$42 to \$44 for unbleached.

We quote:—

News print, rolled ..... \$2.10 to \$2.20  
News print, sheets ..... \$2.75

Book papers—Carload lots

No. 3 ..... 4 to 4½c.

Book papers—Broken lots

No. 3 ..... 4½ to 4¾c.

Carload lots No. 2 ..... 4¾c.

Broken lots No. 2 ..... 5½ to 5¾c.

Carload lots No. 1 ..... 5½ to 6¼c.

Broken lots No. 1 ..... 6 to 6¾c.

**Wrappings—**

Manila B. .... 2½ to 2¾c.

Fibre ..... 3 to 3½c.

No. 2 Manila ..... 2½ to 3¼c.

No. 1 Manila ..... 3¼ to 3½c.

Kraft ..... 4¼ to 4¾c.

**Pulp—**

Ground wood (at mill) ... \$18 to \$20

Sulphite (bleached) ..... \$52 to \$54

“ (unbleached ..... \$39 to \$41

**Waste Papers—**

Per 100 lb.

F.o.b. Toronto.

No. 1 Hard White

Shavings ..... \$1.65 to \$1.75

No. 2 Hard White

Shavings ..... \$1.65 to \$1.75

White Envelope Cut-

tings ..... \$1.65 to \$1.75

No. 1 Soft White

Shavings ..... \$1.45 to \$1.50

No. 2 Soft White

Shavings ..... \$1.25

No. 3 Soft White

Shavings ..... \$1.10

White Blanks ..... \$1.10

Mixed Shavings ..... 35 to 37½c.

Heavy Ledger ..... \$1.27½ to \$1.40

Ordinary Ledger ..... \$1.00 to \$1.10

No. 1 Flat Books ..... 75 to 80c.

No. 1 Book Stock ..... 65 to 75c.

No. 2 Book Stock ..... 39½ to 40c.

No. 1 Manila Envelope Cuttings... \$1.00

No. 1 Print Manilas ..... 57½c.

Railway Manilas ..... 55c.

Folded News Overissues ..... 45c.

Folded News ..... 40c.

Crushed News ..... 25 to 30c.

No. 1 Mixed Papers ..... 25 to 30c.

**Rags (New and Old)—**

Per 100 lb.

1st Old White Cottons ..... \$2.00

2nd Old White Cottons ..... \$1.25 to \$1.45

Thirds and Blues ..... \$1.25 to \$1.45

Roofing Stock—

Flock Satinets ..... 75 to 80c.

Ordinary ..... 55 to 60c.

Tailor Sweepings ..... 55 to 57½c.

No. 1 White Shirt Cuttings \$4.65 to \$4.75

No. 2 White Sheet Cuttings..... \$3.65 to \$3.75

Fancy Sheet Cuttings ..... \$3.65 to \$3.75

New Blue Prints ..... \$3.42½ to \$3.65

New Blue Overalls ..... \$1.60 to \$1.70

New Black Overalls ..... \$1.60 to \$1.75

New Black Linings ..... \$3.90 to \$4.35

New Unbleached Cottons ..... \$3.75 to \$4.40

Bleached and Unbleached Shoe Clips... \$3.90 to \$4.35

New Light Flannelettes .. \$3.90 to \$4.35

New Light Shirt Cuttings \$3.90 to \$4.35

Light and Dark Cords ..... \$3.90 to \$4.35



## RAG AND PAPER STOCK.

Montreal, Dec. 7, 1911.

Dealers report that there is a somewhat better demand all round in the market for rag and paper stock, but more especially for the better grades. New cotton cuttings, in particular, have been selling to the United States quite freely, although, so far as is known, the paper trade does not appear to have greatly picked up there. The explanation is that there is somewhat of a dearth of this class of stock in the

United States, just now, owing to the fact that general business has been poor and the factories which make use of this sort of goods have not been operating full time, the result being that they are not very well supplied with cuttings.

(Continued on Page 74.)



### **MONTREAL PULP AND PAPER MATTERS.**

(Continued from Page 426.)

Another advice from Ottawa speaking of the paper trade says: "So strong has the demand for news print paper become that on account of being booked to capacity with regular contracts, the paper mills of the country are finding it difficult to cope with the situation. In fact, now that the Yuletide season is at hand, with its extra advertising, necessitating extra newsprint paper, some of the largest dealers in Canada have been obliged to purchase American paper to supply their American contracts."

The new mill of Price Bros. at Jonquiere will be shipping pulp about May 1st next. It has estimated earnings of about \$500,000 or \$1,100,000 for the entire company.

If the expectations of the insiders do not go astray the company will be earning close to 14 per cent. on the common stock a year hence.

#### **Favored Nations Difficulties.**

A certain amount of interest is shown in local pulp and paper circles respecting the continued demands from foreign countries upon the United States for the same favorable terms as Canada enjoys. It may be remembered, however, that the present favorable treaty accorded Canada in this matter was generally considered as due to an oversight or accident in connection with the Reciprocity negotiations which went on between the two countries. Denmark and several other countries are putting forward their claims under the "Favored Nations Clause." This week, Denmark, through its Minister in Washington, asked that pulp wood and print paper from Denmark be permitted to enter the United

States free of duty, as was the case with these products from Canada. Representations of a similar character have been made by Germany, Norway and Sweden. These various applications certainly have started President Taft and the various officials thinking, and it is impossible to say at the present moment whether the tendency is more towards the abrogation of the clause favorable to Canada or the admission of the concessions of the other countries.

Of the various industries in the United States, pulp and paper concerns take third place in point of capitalization. The capitalization placed upon American pulp and paper companies situated within the United States and in Canada is estimated at \$500,000,000, of which \$400,000,000 is employed in the United States.

It is understood that the admission of pulp and paper from all countries on the free list would hit over 80 per cent. of the paper industries of the United States, which would mean that some 700 mills would be affected. Some seem to be of the opinion that this is too large an estimate, but in any case the trade is greatly excited over the situation and the government officials are in a quandary as to what action should be taken.

The new \$2,000,000 paper making plant which has been under construction since May last by the Canadian Stewart Company, the Canadian branch of the James Stewart Company, of New York City, on the western branch of the Riviere aux Sables, a tributary of the Saguenay, about half a mile above its junction with the latter river will form, when completed, a remarkable example of what men with ideas and capital can do in converting a patch of wilderness into a busy manufacturing centre and a modern and well populated town.

#### **The New Price Paper Plant.**

Mr. William Price, the president of the firm of Price Bros. & Company, has ideas in connection with the construction



of his new paper making plant as has his manager, Mr. A. O. Porritt, and judging from Mr. Price's past record the ideas will be carried out. With the completion of the new mill and the construction of a dam providing 15,000 horse-power with a drop greater than that of Montmorency Falls, below Quebec, a town will spring into being on the townsite reserved about the present village of Kenogami. It is the intention of Price Bros. to lay out the townsite which had been reserved, in streets, and to build drains, waterworks, provide electric lights for the streets, and build houses for the workmen and employees of the new mills.

Work will be started with the new town in the coming spring, but thirty-seven houses have already been constructed and within a few days all will be occupied. The paper plant will be completed in 1912, and by that time, besides a gigantic mill, a town will have risen in the wilderness. The location of the new mill and town promises a bright future. It is ten miles above tide water and can be reached by water and rail. Already arrangements have been made by Price Bros. for the transportation of their coal and sulphur by water, and within a very few years it is expected that Kenogami will be not only a manufacturing centre but a shipping port as well, which will tap the resources of Northern Quebec and distribute them directly to all parts of the world.

The mill and the big dam and all the accessory buildings of the big plant which are to form the centre and the support of this town have been designed by Mr. George Hardy, the New York engineer, who designed the world-famous Harmsworth paper mills at Grand Falls, Newfoundland. The work of construction is almost completed, and it is expected that during the coming winter the greater part of the machinery now being manufactured in England will be installed.

The mill and its accessory buildings are of steel and concrete construction, and are of the most modern type, being surpassed in this connection by no other manufacturing plant in Canada.

The new mill will when completed manufacture news paper exclusively. It will be equipped to turn out 150 tons of paper a day. This will make the total output for the Jonquiere Pulp Company's mill—which is owned by Price Bros.—and the new mill, 190 tons of paper a day. Twenty-four grinders will be operated in connection with the new mill. These will be driven by water power provided by the new dam, now almost completed. The new mill will employ 300 men.

It will be possible to operate the mill in perpetuity. Price Bros. control four thousand square miles of limits tributary to the Jonquiere and Kenogami mills, and for this reason the future of the new paper manufacturing company is assured. The demand for paper and paper products is increasing annually. Five thousand seven hundred tons of news paper is used every day in the United States and Canada. Australia uses 500 tons a day, the British Isles use 1,200 tons a day and a 10 per cent. increase is the natural increase annually in the demand for paper of this kind. The Jonquiere mills have been supported during the past five years almost exclusively by the Canadian trade and have had no difficulty in getting rid of their daily output. The demand, it is anticipated, will be so great when the new mill at Kenogami is completed that Price Brothers anticipate no more trouble in selling their 190 tons a day than they have at present in selling their forty.

It is expected that the National Paper Company's mill at Valleyfield will be operating within the next few weeks. The concern is a new one and will confine its operations exclusively to coating paper. The output will be 5 tons per day at first but this may be increased to 20 tons. The very latest machinery has been installed.



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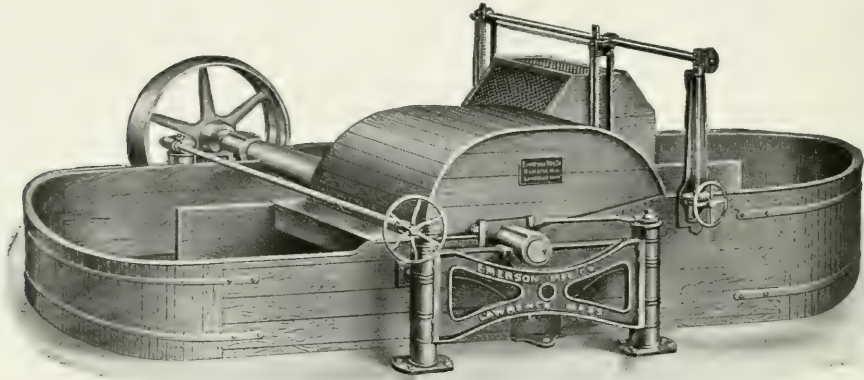
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